NORTH CAROLINA

Medical Journal

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

March, 1961
Vol. 22 No. 3

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Convention Program

relief from pain,
fever, and
inflammation

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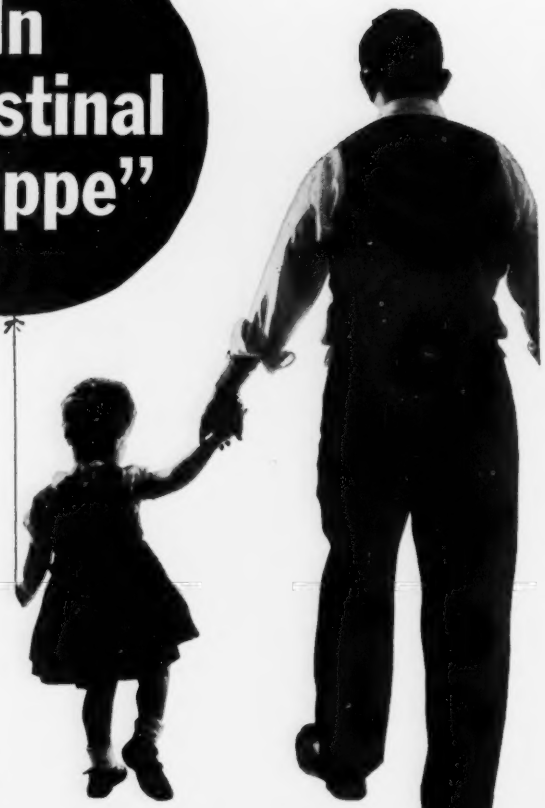
In intestinal "grippe"



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WINGATE M. JOHNSON, M.D., EDITOR

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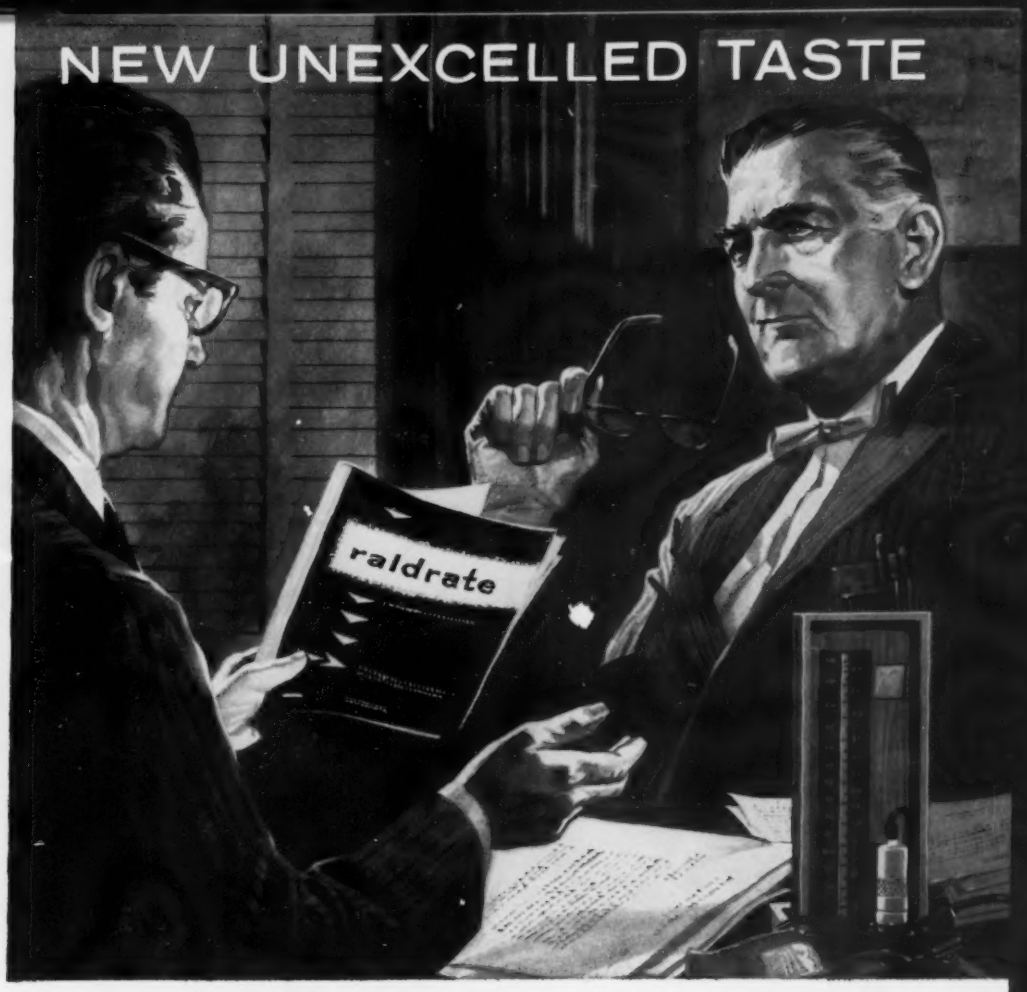

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PAGE 643

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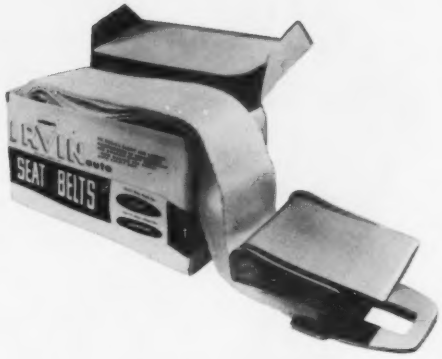

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*Pomeranze, J.: J. New York M. Coll. 1:32, 1959.

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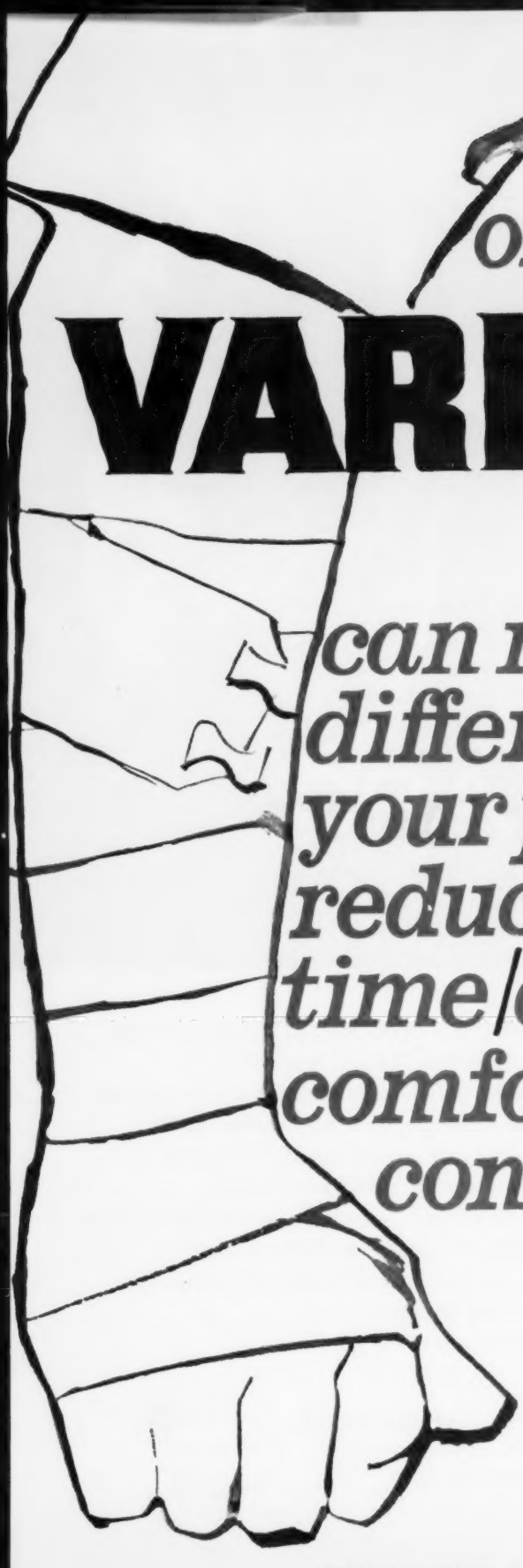

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*Council on Drugs, J.A.M.A. 165:58 (Sept. 7) 1957.

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References: 1. Hollander, J. L.: *J.A.M.A.* 172:306 (Jan. 23) 1960. 2. McGavack, T. H.: *Nebraska M. J.* 44:377 (Aug.) 1959. 3. McGavack, T. H.; Kao, K. Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: *Am. J. M. Sc.* 236:720 (Dec.) 1958.

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. Dosage should be individualized and kept at the lowest level needed to control symptoms. It should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

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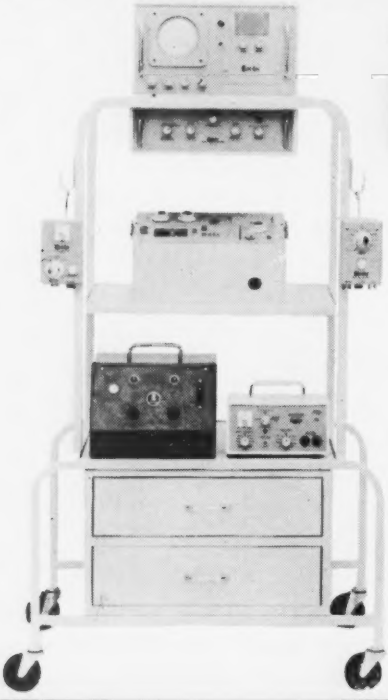

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Supplied: 200 mg. yellow scored tablets, and 100 mg. pink tablets, each in bottles of 100 and 500.

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No absolute contraindications to the use of Dornwal are known. There have been no reports or evidence of habituation, addiction or drug tolerance in animal or clinical studies. Dornwal is relatively free from untoward effects when administered at recommended dosages.

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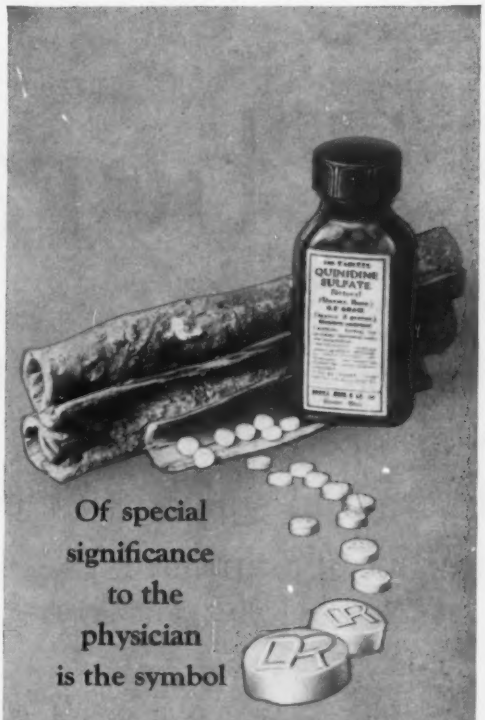
Maltbie

PDW-12



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For your patients with infections or other illnesses who need therapeutic vitamin support. Each Theragran supplies the essential vitamins in truly therapeutic amounts:

Vitamin A	25,000 U.S.P. Units
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Thiamine Mononitrate	10 mg.
Riboflavin	10 mg.
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Vitamin B_{12}	5 mcg.

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"nutrition...present as a modifying or complicating factor in nearly every illness or disease state"[1]

1. Youmans, J. B.: Am. J. Med. 25:659 (Nov.) 1958

cardiac diseases "Who can say, for example, whether the patient chronically ill with myocardial failure may not have a poorer myocardium because of a moderate deficiency in the vitamin B-complex? Something is known of the relationship of vitamin C to the intercellular ground substance and repair of tissues. One may speculate upon the effects of a deficiency of this vitamin, short of scurvy, upon the tissues in chronic disease."[2] 2. Kampmeier, R. H.: Am. J. Med. 25:662 (Nov.) 1958

arthritis "It is our practice to prescribe a multiple vitamin preparation to patients with rheumatoid arthritis simply to insure nutritional adequacy . . ."[3]

3. Fernandez-Herlihy, L.: Lahey Clinic Bull. 11:12 (July-Sept.) 1958.

digestive diseases Symptoms attributable to B-vitamin deficiency are commonly observed in patients on peptic ulcer diets.[4] Daily administration of therapeutic vitamins to patients with hepatitis and cirrhosis is recommended by the National Research Council.[5] 4. Sebrell, W. H.: Am. J. Med. 25:673 (Nov.) 1958. 5. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 57.

degenerative diseases "Studies by Wexberg, Jolliffe and others have indicated that many of the symptoms attributed in the past to senility or to cerebral arteriosclerosis seem to respond with remarkable speed to the administration of vitamins, particularly niacin and ascorbic acid. These facts indicate that the vitamin reserve of aging persons is lowered, even to the danger point, more than is the case in the average American adult."[6] 6. Overholser, W., and Fong, T. C. C. in Stieglitz, E. J.: Geriatric Medicine, 3rd edition. J. B. Lippincott, Philadelphia, 1954, p. 264.

infectious diseases Infections cause a lowering of ascorbic acid levels in the plasma; and the absorption of this vitamin is reduced in diarrheal states.[7] 7. Goldsmith, G. A.: Conference on Vitamin C. The New York Academy of Sciences, New York City, Oct. 7 and 8, 1960. Reported in: Medical Science 8:772 (Dec.10) 1960.

diabetes Diabetics, like all patients on restricted diets, require an extra source of vitamins.[8] "Rigidly limiting the bread intake of the diabetic patient automatically eliminates a large amount of thiamin from the diet. . . . There is some evidence of interference with normal riboflavin utilization during catabolic episodes."[9]

8. Duncan, G. G.: Diseases of Metabolism, 4th edition. W. B. Saunders, Philadelphia, 1959, p. 812. 9. Pollack, H.: Am. J. Med. 25:708 (Nov.) 1958.

FOR FULL INFORMATION SEE YOUR SQUIBB PRODUCT REFERENCE OR PRODUCT BRIEF.

In over five years

Proven
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Effective
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Outstandingly Safe

1. simple dosage schedule produces rapid, reliable tranquilization without unpredictable excitation
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3. does not produce ataxia, change in appetite or libido
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meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.
Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets.
Also as MEPROTABS® — 400 mg. *unmarked*, coated tablets; and as MEPROSPAN® — 400 mg. and 200 mg. *continuous release* capsules.

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CM-2557

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...for the tense and nervous patient

Despite the introduction in recent years of "new and different" tranquilizers, Miltown continues, quietly and steadfastly, to gain in acceptance. Meprobamate (Miltown) is prescribed by the medical profession more than any other tranquilizer in the world.

The reasons are not hard to find. Miltown is a ***known*** drug. Its few side effects have been fully reported. ***There are no surprises in store for either the patient or the physician.***

NEW analgesic

Kills pain

stops tension

For neuralgias, dysmenorrhea, upper respiratory distress, postsurgical conditions... new compound kills pain, stops tension, reduces fever—gives more complete relief than other analgesics.

Soma Compound is an entirely new, totally different analgesic combination that contains three drugs. First, Soma: a new type of analgesic that has proved to be highly effective in relieving both pain and tension.* Second, phenacetin: a "standard" analgesic and antipyretic. Third, caffeine: a safe, mild stimulant for elevation of mood. As a result, the patient gets more complete relief than he does with other analgesics.

Soma Compound is nonnarcotic and nonaddicting. It reduces pain perception without impairing the natural defense reflexes.*

NEW NONNARCOTIC ANALGESIC

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Composition: Soma (carisoprodol), 200 mg.; phenacetin, 160 mg.; caffeine, 32 mg.
Dosage: 1 or 2 tablets q.i.d.
Supplied: Bottles of 50 apricot-colored, scored tablets.

NEW FOR MORE SEVERE PAIN

soma® Compound + codeine

BOOSTS THE EFFECTIVENESS OF CODEINE: Soma Compound boosts the effectiveness of codeine. Therefore, only ¼ grain of codeine phosphate is supplied to relieve the more severe pain that usually requires ½ grain.

Composition: Same as Soma Compound plus ¼ grain codeine phosphate.
Dosage: 1 or 2 tablets q.i.d.
Supplied: Bottles of 50 white, lozenge-shaped tablets; subject to Federal Narcotics Regulations.

*References available on request.

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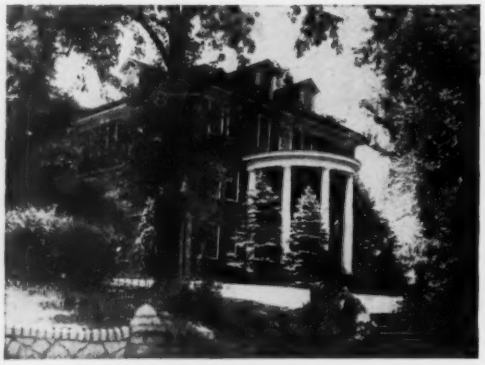
ASHEVILLE, NORTH CAROLINA
Affiliated with Duke University



A non-profit psychiatric institution, offering modern diagnostic and treatment procedures — insulin, electro-shock, psychotherapy, occupational and recreational therapy — for nervous and mental disorders.

The Hospital is located in a 75-acre park, amid the scenic beauties of the Smoky Mountain Range of Western North Carolina, affording exceptional opportunity for physical and emotional rehabilitation.

The OUT-PATIENT CLINIC offers diagnostic service and therapeutic treatment for selected cases desiring non-resident care.

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Pain Reliever

Professional confidence in the uniformity, potency and purity of Bayer Aspirin is evidenced by ever increasing recommendation. Today Bayer Aspirin is the most widely accepted brand of analgesic in the world.

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The ideal cerebral tonic and stimulant for the aged.

NICOZOL therapy (the original formula) affords prompt relief of apathy. Patients generally look better, feel better; become more cooperative, cheerful and easier to manage.
No dangerous side effects.

NICOZOL contains pentylenetetrazol and nicotinic acid

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Supply: Capsules • Elixir

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see Page 581

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Write for professional sample and literature.

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EFFECTIVE ANTIHISTAMINE-DECONGESTANT ACTION

COVANAMINE'S combination of two antihistamines and two decongestants—shrinks swollen turbinates—opens blocked ostia—promotes drainage—reestablishes patency—in the treatment of common colds, rhinitis, sinusitis, nasal allergies and post nasal drip.

Constant therapeutic levels are maintained by COVANAMINE'S Sustained Action Tablets which meter out the active ingredients . . . with minimal side effects, less drowsiness.

COVANAMINE(TM)
Sustained Action Tablets

Also available as Black Cherry Flavored COVANAMINE LIQUID; COVANAMINE EXPECTORANT provides the liquid formula plus glyceryl guaiacolate.

Each Sustained Action (continuous release) COVANAMINE tablet contains: phenylephrine HCl 15 mg., phenylpropanolamine HCl 25 mg., Chlorpheniramine maleate 4 mg., and pyrilamine maleate 25 mg.

COVANAMINE LIQUID provides ¼ the tablet formula in each 5 ml. teaspoon.

COVANAMINE EXPECTORANT provides the liquid formula plus glyceryl guaiacolate 100 mg. per teaspoon.

Dosage: Tablets: Adults—1 tablet (swallowed without chewing) morning, mid-afternoon and at bedtime; Children, 6 to 12 years—½ tablet. Liquid and Expectorant: Adults—2 teaspoonfuls every four hours. Children 6 to 12 years—1 teaspoonful every four hours; 1 to 6 years—½ teaspoonful every four hours; under 1 year—¼ teaspoonful every four hours.

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Pays up to $10,000.00 for each member of your family, subject to deductible you choose

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Each of the babies pictured on this page was borne by a mother with a *documented* previous history of true habitual abortion, who was treated with DELALUTIN during the pregnancy leading to this birth

LIVING PROOF OF FETAL SALVAGE WITH DELALUTIN

SQUIBB HYDROXYPROGESTERONE CAPROATE

Improved Progestational Therapy

Garden City, N. Y.

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DELALUTIN offers these advantages over other progestational agents

• long-acting sustained therapy • more effective in producing and maintaining a completely matured secretory endometrium • no androgenic effect • more concentrated solution requiring injection of less vehicle • unusually well-tolerated, even in large doses • fewer injections required • low viscosity makes administration easy

Complete information on administration and dosage is supplied in the package insert

Supply:
Vials of 2 and 10 cc., each containing 125 mg. of hydroxyprogesterone caproate in benzyl benzoate and sesame oil.
Also available: DELALUTIN 2X in 5 cc. multiple-dose vials. Each cc. contains 250 mg. hydroxyprogesterone caproate in castor oil, preserved with benzyl alcohol.

SQUIBB *Squibb Quality—The Priceless Ingredient*

"DELALUTIN"® IS A SQUIBB TRADEMARK

"...extraordinarily effective diuretic..."[1]

Efficacy and expanding clinical use are making Naturetin the diuretic of choice in edema and hypertension. It maintains a favorable urinary sodium-potassium excretion ratio, retains a balanced electrolyte pattern, and causes a relatively small increase in the urinary pH.[2] More potent than other diuretics, Naturetin usually provides 18-hour diuretic action with just a single 5 mg. tablet per day — economical, once-a-day dosage for the patient. Naturetin c K — for added protection in those special conditions predisposing to hypokalemia and for patients on long-term therapy.

Supplied: Naturetin Tablets, 5 mg., scored, and 2.5 mg. Naturetin c K (5 c 500) Tablets, capsule-shaped, containing 5 mg. benzydroflumethiazide and 500 mg. potassium chloride. Naturetin c K (2.5 c 500) Tablets, capsule-shaped, containing 2.5 mg. benzydroflumethiazide and 500 mg. potassium chloride. For complete information consult package circular or write Professional Service Dept., Squibb, 745 Fifth Avenue, New York 22, N. Y.

References: 1. David, N. A.; Porter, G. A., and Gray, R. H.: Monographs on Therapy 5:60 (Feb.) 1960. 2. Ford, R. V.: Current Therap. Res. 2:92 (Mar.) 1960.

Naturetin Squibb Benzydroflumethiazide

Naturetin c K Squibb Benzydroflumethiazide with Potassium Chloride

SQUIBB

ANNOUNCING—
SPECIFICALLY FOR
INFECTIONS DUE TO
"RESISTANT" STAPHYLOCOCCI

AN ENTIRELY NEW SYNTHETIC
"STAPH-CIDAL" PENICILLIN

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

UNIQUE—BECAUSE IT
RETAINS ANTIBACTERIAL
ACTIVITY IN THE PRESENCE OF
STAPHYLOCOCCAL PENICILLINASES
WHICH INACTIVATE
OTHER PENICILLINS

Bristol™

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NEW SYNTHETIC PENICILLIN FOR "RESISTANT" STAPH

OFFICIAL PACKAGE CIRCULAR
November, 1960

STAPHCILLIN™

(sodium dimethoxyphenyl penicillin)
For Injection

DESCRIPTION

STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Syncillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960.

(continued)

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OFFICIAL PACKAGE CIRCULAR
(continued)

MICROBIOLOGICAL AND PHARMACOLOGICAL PROPERTIES

In vitro studies show that STAPHCILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHCILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHCILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHCILLIN is stable in the presence of staphylococcal penicillinase. STAPHCILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHCILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHCILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHCILLIN is rapidly absorbed after intramuscular injection. Peak blood levels (6-10 mcg./ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 4 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHCILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHCILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHCILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHCILLIN therapy.

Toxicity studies with STAPHCILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHCILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHCILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHCILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHCILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Syncillin) and STAPHCILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHCILLIN therapy, appropriate measures should be taken.

SUPPLY

List 79502 — 1.0 Gm. dry filled vial.

BRISTOL LABORATORIES · SYRACUSE, NEW YORK
Division of Bristol-Myers Company

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UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN

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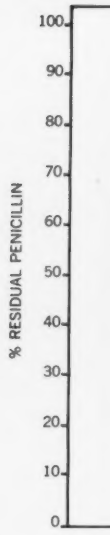

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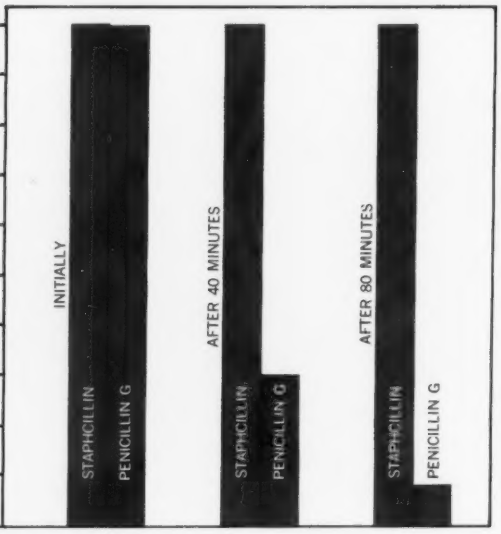

In the presence of staphylococcal penicillinase, STAPHCILLIN remained active and retained its antibacterial action. By contrast, penicillin G was rapidly destroyed in the same period of time. *(After Gourevitch et al., to be published)*

cifically for "resistant" staph...

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

re of staphylococcal infections to respond to penicillin therapy is attributed to illin-destroying enzyme, penicillinase, produced by the invading staphylococcus.

her penicillins:

HCILLIN is effective because it retains its antibacterial activity despite the pres- aphylococcal penicillinase.

clinical effectiveness of STAPHCILLIN has been confirmed by dramatic results in riety of infections due to "resistant" staphylococci, many of which were serious hreatening.

r penicillins:

HCILLIN has no significant systemic toxicity. It is well tolerated locally, and rritation at the injection site is comparable to that following the injection of G. *In occasional cases, typical penicillin reactions may be experienced.*

SSIONAL INFORMATION SERVICE – The attached Official Package Circular provides com- ormation on the indications, dosage, and precautions for the use of STAPHCILLIN. If you desire l information concerning clinical experiences with STAPHCILLIN, the Medical Department of aboratories is at your service. You may direct your inquiries via collect telephone call to New York, 7061, or by mail to Medical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

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You see an improvement within a few days
Thanks to your prompt treatment and the smooth action of Deprol, her depression is relieved and her anxiety and tension calmed – *often in a few days.* She eats well, sleeps well and soon returns to her normal activities.

Lifts depression...as it calms anxiety!

Smooth, balanced action lifts depression as it calms anxiety...rapidly and safely

Balances the mood – no "seesaw" effect of amphetamine-barbiturates and energizers. While amphetamines and energizers may stimulate the patient – *they often aggravate anxiety and tension.*

And although amphetamine-barbiturate combinations may counteract excessive stimulation – *they often deepen depression.*

In contrast to such "seesaw" effects, Deprol's smooth, *balanced* action lifts depression as it calms anxiety – both at the same time.

Acts swiftly – the patient often feels better, sleeps better, within a few days. Unlike the delayed action of most other antidepressant drugs, which may take two to six weeks to bring results, Deprol relieves the patient quickly – often within a few days. Thus, the expense to the patient of long-term drug therapy can be avoided.

Acts safely – no danger of liver damage. Deprol does not produce liver damage, hypotension, psychotic reactions or changes in sexual function – frequently reported with other antidepressant drugs.

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

Composition: 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate. **Supplied:** Bottles of 50 light-pink, scored tablets. Write for literature and samples.

▲Deprol▲®

WALLACE LABORATORIES / *Cranbury, N. J.*

CD-2830

...the proof of the Patrician "200" is in the radiograph!

When you choose x-ray for private practice, look at performance as well as the price tag. "Economy" that is gained by short-cuts in table design or a reduction in power may mean slow exposures, blurred radiographs and repeated retakes. General Electric's Patrician "200" combination is designed with adequate power for private practice — a full 200 ma to stop anatomical movement sharply and clearly. Many other features found in larger installations are engineered into the Patrician: 81" table, independent tubestand, shutter limiting and automatic tube protection, to name just a few. And, considering its *uncompromising* G-E quality, this Patrician "package" is remarkably low priced.

Rent the Patrician through the G-E Maxi-service® plan that provides the complete installation, *including* maintenance, parts, tubes, insurance, local taxes — *everything* in one monthly fee. Get details from your G-E x-ray representative listed below.

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Put your low-back patient back on the payroll

Soma relieves stiffness –stops pain, too

YOUR CONCERN: Rapid relief from pain for your patient. Get him back to his normal activity, fast!

HOW SOMA HELPS: Soma provides direct pain relief while it relaxes muscle spasm.

YOUR RESULTS: With pain relieved, stiffness gone, your patient is soon restored to full activity—often in days instead of weeks.

Kestler reports in controlled study: *Average time for restoring patients to full activity: with Soma, 11.5 days; without Soma, 41 days.* (*J.A.M.A. Vol. 172, No. 18, April 30, 1960.*)

Soma is notably safe. Side effects are rare. Drowsiness may occur, but usually only in higher dosages. Soma is available in 350 mg. tablets. **USUAL DOSAGE: 1 TABLET Q.I.D.**

The muscle relaxant with an independent pain-relieving action

SOMA®

(carisoprodol, Wallace)

Wallace Laboratories, Cranbury, New Jersey

DORNWAL® IS THE TRANQUILIZER VERSATILE ENOUGH TO BE USED ALMOST ANYWHERE.

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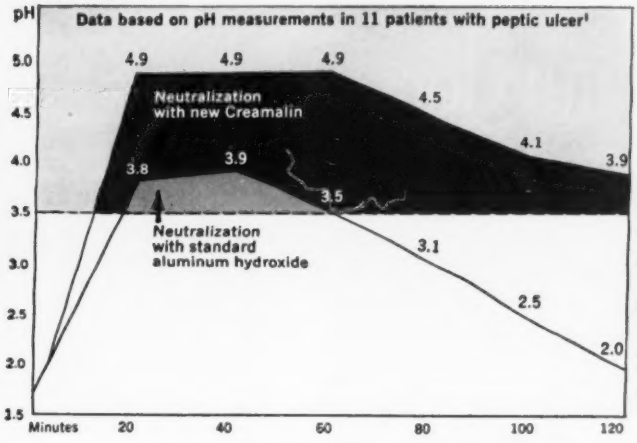

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1. Data in the files of the Department of Medical Research, Winthrop Laboratories. 2. Hinkel, E. T., Jr.; Fisher, M. P., and Tainter, M. L.: J. Am. Pharm. A. (Scient. Ed.) 48:384, July, 1959.

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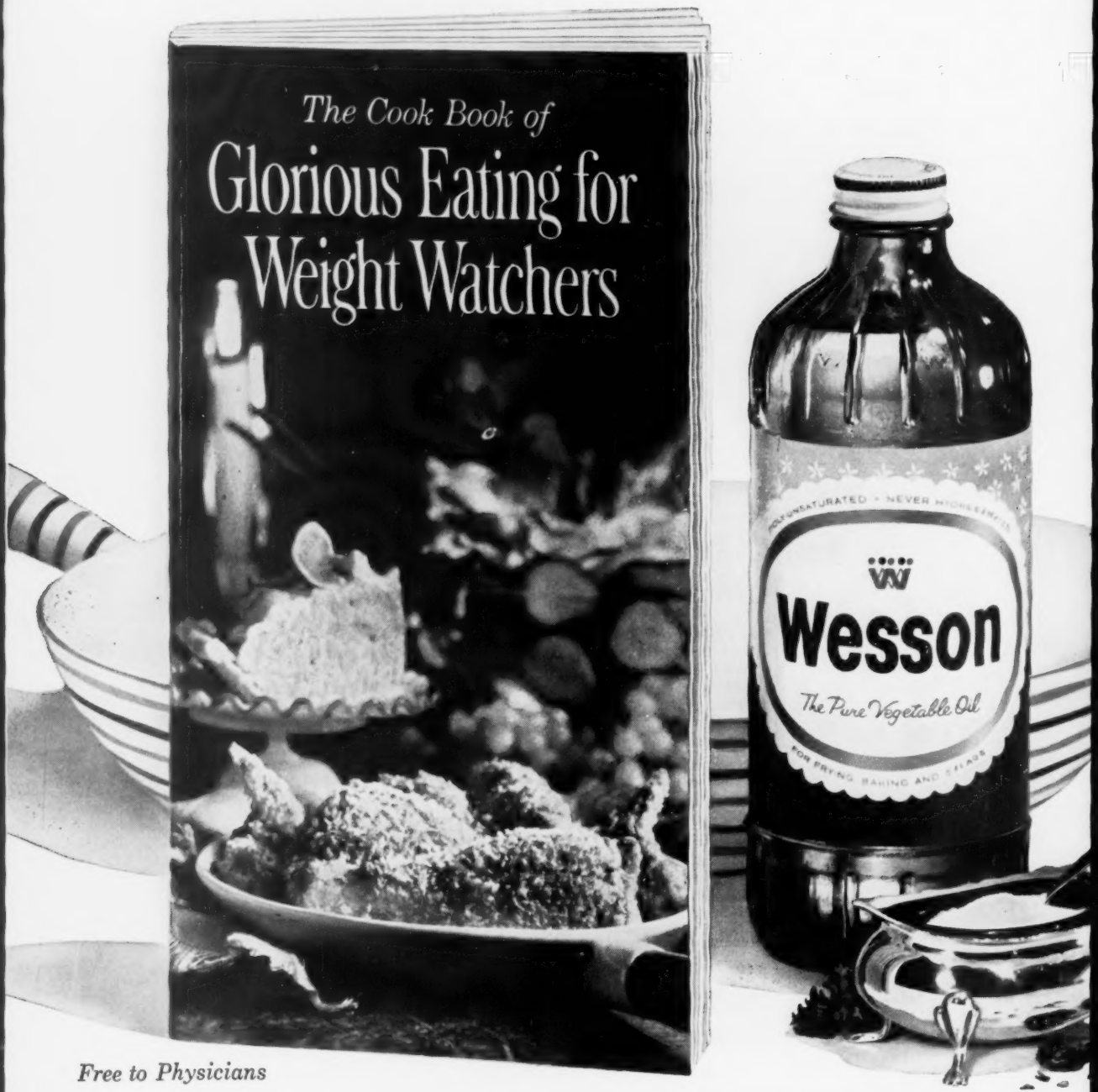

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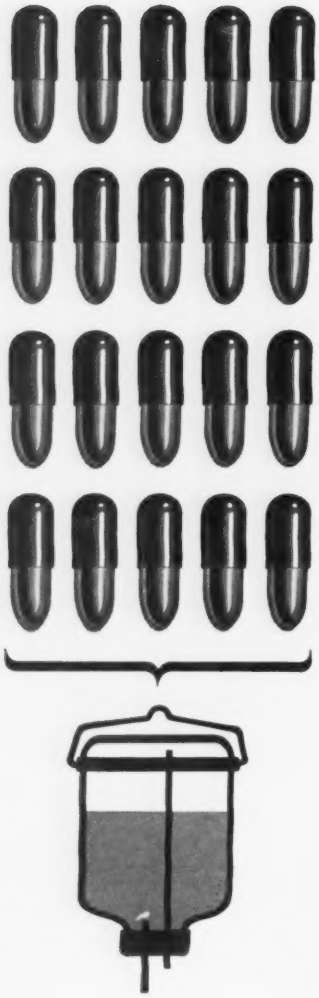

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Annular Pancreas in the Adult: Report of Four Cases

EDWIN L. SEIGMAN, M.D.
AND
LEWIS S. THORP, M.D.
ROCKY MOUNT

This paper will describe briefly, and illustrate, the principal clinical and roentgenographic findings of four surgically verified cases of annular pancreas in adults. In each case, the primary roentgen diagnosis was made preoperatively.

Annular pancreas, first described by Tiedemann in 1818 and named by Ecker in 1862[1], was once thought to be a very rare congenital anomaly, but it has been reported with increasing frequency in the past 10 years. Between 125 and 150 cases have been described to date in the world literature. Approximately one third of these were found in infants and young children[2]. A total of about 110 cases, including the pediatric ones, have been treated surgically[3]. Of approximately 74 adult cases, only 23 per cent were correctly diagnosed before operation[1].

Embryology and Anatomy

The most likely explanation of annular pancreas is persistence of the left half of the ventral pancreatic anlage, which ordinarily atrophies. The resulting tissue grows around the duodenum to join the dorsal pancreas, so that the duodenum is encircled by pancreatic tissue[4]. Failure of the ventral anlage to rotate to the right and posteriorly with the duodenum may also play a part in the process[5].

Whatever the actual process, the resulting ring-like structure is made up of normal pancreatic tissue, including a duct system. This system loops around the duodenum posteriorly to empty into the duct of Wirsung. The annulus is not complete in all cases, and if incomplete, the gap is usually found anteriorly. A fibrous band may join the two ends[5].

The region of encirclement is the descending or second part of the duodenum in most cases. However, the other parts of the duodenum can also be involved[5]. Inclusion of the ampulla of Vater in the ring is uncommon, particularly in adults. When this does occur, jaundice is a prominent and early feature, leading to discovery of the condition in young infants[4].

Pathology

The one most important result of the annulus, and causing most of the symptoms, is duodenal obstruction of varying degrees[1]. This frequently produces a secondary dilatation of the duodenum proximal to the lesion. The stomach may also become dilated.

Three basic clinical types of annular pancreas are recognized, depending upon the amount of obstruction produced: (1) complete or almost complete, requiring surgery shortly after birth; (2) partial, occuring in later life: (3) minimal or none, in which case the lesion is not found except at the autopsy table[4].

Other diseases of the upper gastrointestinal tract act as trigger mechanisms to produce symptoms in the second type[5]. One such condition is acute or chronic pancreatitis of the annulus or pancreas proper. Pancreatitis has a high incidence of association with annuluar pancreas in the adult[1].

From the Department of Radiology and Medicine, Boice-Willis Clinic, Rocky Mount, North Carolina.

Associated carcinoma in either the annulus or pancreas itself is rare[4].

Another condition frequently associated with annular pancreas is peptic ulcer, or at least inflammation of the duodenum or stomach[6]. Duodenal ulceration usually occurs proximal to the annulus. Only 2 cases have been reported in which ulcer was found in the constricted portion of the duodenum. One of these is described in this paper (case 1, fig. 2).

Gallbladder disease associated with annular pancreas has been reported, but it is not common[7].

Incidence

One of the most interesting facts concerning this anomaly is that many more cases in adults than in infants have been reported[1]. In the past few years however, a higher percentage of cases in infants has been found. Basically, the obstruction seems to be more potential than actual in a majority of cases.

In the adult group, ages have ranged from 17 to 81 years. The latter patient (case 1 in this report) is the oldest recorded in the literature.

Annular pancreas occurs much more frequently in males than females[6]. There is no racial predilection.

Symptoms

The symptoms are mainly due to the degree of duodenal obstruction[5]. They may be severe and of sudden onset, or chronic and mild.

Chief complaints have been pain, usually epigastric, and vomiting. Pain occurred in 90 per cent of the cases reviewed by Drey[1], and varied from a sense of bloating to a cramping, intermittent type, somewhat similar to that associated with acute peptic ulcer.

Vomiting occurred in almost two thirds of Drey's cases[1]. Hematemesis was rare. Nocturnal aggravation of pain and vomiting were thought to be important diagnostic findings. Another observation was the presence of a generally good nutritional state, maintained in spite of a usually long duration of symptoms. The frequent presence of pancreatitis or peptic ulcer further complicates the clinical picture.

Fig. 1. (Case 1) The duodenal loop ring-like defect is well demonstrated on this film made in 1952. Here the annulus completely surrounds the loop.

Laboratory studies are not helpful in diagnosing this condition[8].

Roentgen Criteria

In adults, roentgen examination of the upper gastorintestinal tract with contrast medium is the only clinical method of making a diagnosis[5]. The bulb and the duodenum proximal to the annulus show varying degrees of symmetrical dilatation. In uncomplicated cases, no spasm of the duodenum is present. The characteristic smooth, eccentric, or ring-like deformity of the duodenum caused by the annulus is visualized as a contant defect on all films. The defect and caliber of the lumen are unchanged by the patient's posture, respiratory phase, straining, stage of digestion, or by any external pressure[9]. There is no tenderness or mucosal destruction. The mucosal folds may be smaller than normal. On repeated studies, no matter how many nor how far apart, the deformity always has the same appearance[9]. This is demonstrated in case 1, figures 1 and 2.

The defect itself may be a ring-like construction, if the annulus is large and complete; but usually it is a smooth, rounded pressure defect found on the outer border of the duodenal loop, measuring 1 to 3 cm. in length. This produces an eccentric narrowing of the duodenal lumen[5,8].

Fig. 2. (Case 1) In 1955, when this study was made, the defect was exactly the same as in 1952. At this time, an acute ulcer was found in the constricted portion of the duodenum. It can be partly seen on the anterior (greater curvature) border of the defect. Note dilatation of the cap.

The roentgen diagnosis of annular pancreas in the infant is quite different from that in adult and will not be considered here.

Differential Diagnosis

Postbulbar ulcer and neoplasms of the duodenum or surrounding structures are important considerations in the differential diagnosis of annular pancreas[9]. This is particularly true of benign duodenal ulcers, since they often occur with annular pancreas. One of these conditions could easily mask the other, as in case 1.

Ulcers of the postbulbar area show thickening and irregularity of the mucosal pattern, irritability of the duodenum, and usually the presence of a crater[9]. Duodenal neoplasm shows irregularity and destruction of the mucosa. It is a rare condition. Pancreatic neoplasm may pose a difficult differential problem. However, the pressure defect often extends into the inner border of the loop, with more irregularity and effacement of mucosal folds. Also, the retrogastric space may be increased on upright lateral films.

The large duodenal bulb frequently associated with annular pancreas indicates a benign, long-standing obstruction which is usually not seen in the other lesions[9].

A few other conditions should be mentioned in the differential diagnosis, but the majority are rare and the differential diagnosis is not too difficult in most cases. Some of these are cholecystoduodenocolic bands, aberrant vessels, aberrant tissue rests, diverticula, and inflammatory adhesions[8].

Treatment

For the adult symptomatic patient the only treatment is surgery. Originally, the annulus itself was resected, but this procedure proved to be unsatisfactory. Not only were there many complications, including pancreatitis and fistula formation, but also the relief of symptoms was inadequate. Various by-passing procedures and other operations were tried. From these experiences the consensus of sureons at present is that a gastrojejunostomy of some type will give the most satisfactory results[4,8,10].

Three of our patients (cases 1, 2, and 4) were treated by gastrojejunostomy, and the other (cases 3) by gastroduodenostomy. Recent follow-ups have shown that all have had satisfactory relief of symptoms. In other cases, however, results have not always been entirely successful, and varying degrees of symptoms have persisted.

Illustrative Cases

Case 1

An 81 year old diabetic white male was first examined by us in 1950, when he complained of epigastric pain after meals. X-ray examination showed an area of postbulbar duodenal constriction, thought to be spasm and scarring from a healed ulcer. Annular pancreas was considered. In 1952 he was re-examined after an upper gastrointestinal hemorrhage with hematemesis. Roentgenograms showed persistence of the duodenal defect. In 1955 persisting epigastric pain resulted

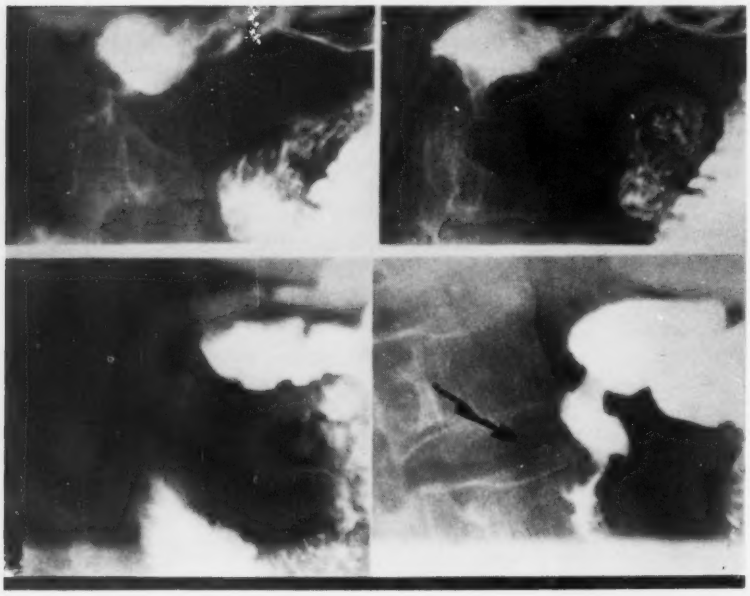

Fig. 3. (Case 2) These "spot" films show a fairly typical pressure defect of the duodenal loop from annular pancreas. The deformity persists on all films. The cap is slightly dilated.

in another x-ray study which showed the duodenal constriction and a 7-mm. ulceration at the site. While he was being treated for the duodenal ulcer, a partial duodenal obstruction developed. On repeat radiologic examination, the deformity was seen without evidence of active ulcer. This examiner also suspected annular pancreas. Surgery was deferred because of advanced age and diabetes mellitus.

In 1958 the patient ate a frankfurter and immediately began to have epigastric pain with hematemesis. A gastrointestinal series again showed the same duodenal defect, and the primary impression was annular pancreas.

Operation confirmed the diagnosis of annular pancreas.

He has made an excellent postoperative recovery and now supervises his farm. In retrospect, he recalls epigastric pain of 65 years' duration.

Case 2

This 49 year old white man was examined in 1956 for anxiety state. At that time his appetite was good.

In 1958 he was again examined for a similar complaint, but within the preceding year anorexia and frequent nausea had developed. The nausea occurred one or two hours after eating, lasted an hour, and then disappeared without pain. In spite of these complaints he gained 8 pounds between the two examinations. A gastrointestinal series showed a defect in the second part of the duodenum with partial obstruction.

Fig. 4. (Case 3) Typical appearance of annulus constricting the second part of the duodenum.

This was interpreted as annular pancreas. Roentgenograms taken in 1955 in another hospital were reviewed and showed the same defect.

An operation done on February 14, 1958, confirmed this diagnosis, and an anterior gastrojejunostomy was performed. The last follow-up examination in 1959 disclosed an incisional hernia and anxiety state, but digestive function was adequate.

Case 3

This 31 year old white man was examined in 1957 on admission to the hospital after an episode of syncope. He gave an incidental history of epigastric and right mid-abdominal pain occurring after meals for at least two years. An appendectomy had been performed during an attack of pain, but did not bring relief. An isolated episode of hematemesis occurred three months prior to our examination. A gastrointestinal roentgenogram made at that time was reportedly negative.

Our physical examination was that of a normal male. A roentgenogram of the upper gastrointestial tract showed an extrinsic lesion in the second part of the duodenum, which was diagnosed as annular pancreas. Operation confirmed this diagnosis, and a gastroduodenostomy was performed.

The last follow-up examination in 1959 revealed severe psychiatric difficulty but no known digestive complaints.

Case 4

This 66 year old white male was examined in 1958 with a complaint of postprandial epigastric pain and fullness of 20 years' duration. He had not vomited nor had hematemesis, and had maintained his weight. Since an appendectomy, there had been some right lower quadrant colic and low back pain.

X-ray studies showed a defect in the second part of the duodenum, and partial obstruction. This was interpreted as annular pancreas. Operation confirmed the diagnosis and also disclosed adhesions in the right lower quadrant. An anterior gastrojejunostomy was performed.

The postoperative course was uneventful except for a transient episode of partial intestinal obstruction 11 days after surgery.

Summary and Conclusions

1. The congenital anomaly, annular pancreas, is probably more common than the older literature indicated. The incidence, embryology, anatomy, pathology, radiology, and surgery of this condition have been briefly reviewed.

2. Four adult cases, diagnosed preoperatively, are presented with the roentgen and surgical findings. One of these patients, aged 81, is the oldest with this anomaly recorded to date in the literature.

3. Chronic or acute duodenal obstruction from annular pancreas in the adult may be initiated by superimposed diseases. The clinical symptoms vary directly with the degree of obstruction. Characteristic complaints are postprandial pain and vomiting, usually worse at night. Peptic ulcer and pancreatitis frequently accompany the anomaly.

4. Roentgen examination of the upper

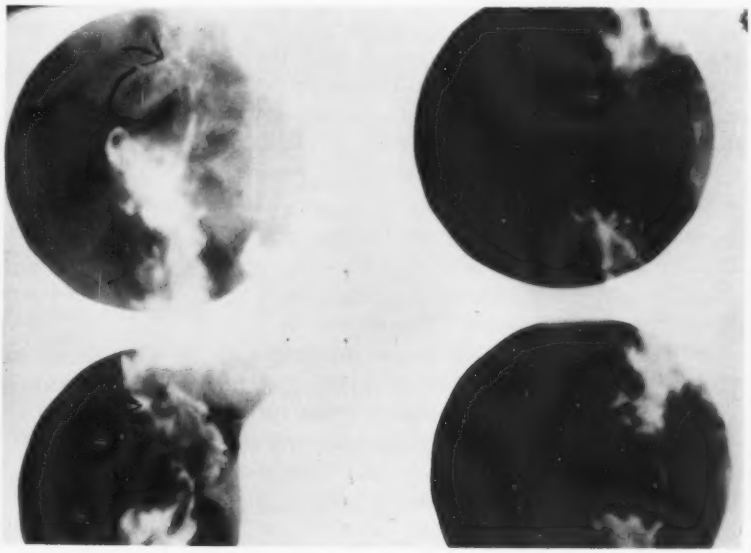

Fig. 5. (Case 3) "Spot" films showing in greater detail the defect seen in figure 4. Note presence of defect on all views. The appearance is typical in that the defect is more marked on the posterior or outer (lesser curvature) border.

Fig. 6. (Case 4) The persistently narrowed segment of the duodenal loop is noted. The cap is slightly dilated—a common secondary finding.

gastrointestinal tract is the only non-surgical method of making the diagnosis in the adult. Characteristic findings are chronic obstruction with dilatation of the duodenum proximal to the lesion, and the constant, unvarying, smooth pressure defect of the loop of the duodenum. A greater awareness of these findings will result in a higher percentage of preoperative diagnoses of this condition.

5. Treatment of symptomatic cases is best accomplished by a bypassing procedure, such as one of the types of gastrojeunostomy.

The 4 patients presented here obtained satisfactory relief of symptoms after operation, but not all patients are as fortunate.

6. Pediatric cases of annular pancreas present an entirely different diagnostic and therapeutic problem, and thus are not discussed in this paper.

Acknwledgements

The authors are greatly indebted to Dr. G. C. Daughtridge, Department of Radiology, Boice-Willis Clinic, for much help in assembling material for this report; also to Drs. H. G. Fish and N. P. Battle, Department of Surgery, Boice-Willis Clinic, for surgical findings in the four cases; and to Dr. J. G. Smith, Department of Medicine, Boice-Willis Clinic, for clinical material in one of the cases.

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It is mainly when the diagnosis is obscure or when the expected favorable course of an illness does not take place that the physician must constantly ask himself "what further test may I do that will solve the riddle or what therapeutic procedure may I carry out that will help matters."—Levine, S. A.: Worry—Where Will It Get You? The Pharos 23: 214 (Oct.) 1960.

Fluid and Electrolyte Balance of the Anesthetized Pediatric Patient

KENNETH D. HALL, M. D.
DURHAM

Infants and small children are not just "little people." There are qualitative as well as quantitative differences which distinguish their fluid and electrolyte balance from that of adults. Fortunately, infants have great capacities in some respects. Their recuperative powers are sometimes remarkable in spite of what we do or do not do to them. They rarely suffer from chronic or degenerative diseases of the heart, liver, lungs or kidney—all of which impose special problems in the fluid and electrolyte balance of the adult.

Unfortunately, however, infants have very limited capacities in other respects. They cannot tolerate large variations in fluids and electrolytes, as can adults. It behooves all of us, therefore, to consider, calculate, and administer fluids very carefully to infants and small children.

Methods of Calculation

A few figures will be mentioned to serve as a guide for fluid and electrolyte therapy, but it must be remembered that figures and calculations must be tempered by clinical judgment.

First: All fluid replacement should be calculated on the basis of body weight. This is simply because all measurements of fluid loss are by weight. The calculation can be done in three ways:

1. Weigh the infant. Deviations from his normal weight—or, if that is not available, his predicted normal—that cannot be explained on a nutritional basis must be due to fluid gain or loss.

2. Weight (or measure) volume of fluid loss, such as gastric suction, urine, blood in sponges, and so forth.

3. If the foregoing information is not available, and if the child is dehydrated as determined by history and physical examination, an estimate of 10 per cent of the body weight may be made (table 1). In infants this fluid loss is nearly all water, not water and mineral solutes as in the adult.

Table 1

Physiologic Comparisons Between Newborn, One-Year-Old and Adult

Physiologic Dimensions	*Newborn*	*1 Year*	*Adult*
Weight in Kg.	3.0	10.0	70
Weight in pounds	6.6	22.0	154
Surface area in M^2	.2	.45	1.75
Total body water (cc)	2400	7500	42,000
Blood volume (cc)	240	750	4200
Stroke volume (cc)	12	40	.....
Cardiac output (cc/min)	1560	5200	.....
Unavoidable daily fluid loss (cc)	132	440	1400
Dehydration (cc)	300	1000	.....

Blanks occur where comparisons are not applicable or valid.

M^2 = square meters.

Cardiac output is based on arbitrary heart rate of 130 per minute.

4. The blood volume is also based on weight and is usually considered about 80 cc per kilogram of body weight in the infant, 75 cc. per kilogram in the small child, and 60 cc. per kilogram in the adult. The blood volume is about 10 per cent of the total body water regardless of size or age, and it is the total body water that decreases with age, mainly because of accumulation of fat. A rough estimate of whether the blood volume is normal or not can be made from the hemoglobin or hematocrit.

Of course any severe departure from the normal fluid volumes should be corrected, preferably at least a day before any surgery or anesthesia.

Second: All fluid requirements should be calculated on the basis of body surface. This is because most physiologic functions are proportional to body surface—for example,

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From the Division of Anesthesia, Duke University Medical Center, Durham, North Carolina.

evaporation of water, and heat loss. These simple proportionalities are of interest.

1. Surface area is in proportion to length^2
2. Weight (volume) is in proportion to length^3
3. Surface is in proportion to $\frac{\text{weight}}{\text{length}}$

The newborn has one-twentieth the weight of an adult. The newborn has one ninth the area of an adult. The newborn has one-third the length of an adult.

The usual fluid requirement is 1,500 cc. per square meter per day, or, remembering that there are 1,440 minutes per day, 1 cc. per square meter per minute (table 2). For premature infants there is a preset limit of 30 cc. per pound (66 cc. per kilogram) per day. This is about half the value calculated from surface area, probably because the metabolic rate of premature infants is about half what one would expect from the surface area.

Factors Affecting Fluid and Electrolyte Loss

The water loss of an infant is relatively greater than that of an adult, owing mainly to two facts: (1) a higher metabolic rate, with the resultant increase in waste products to be washed out; and (2) the fact that the infant kidney can excrete only hypotonic urine. It has been said of infants that "their total store is depleted at more than twice the rate of adults, and so they die in half the time." The unavoidable daily water loss in the infant, mainly from the lungs, skin, and the urine obligatoire amounts to about 4 per cent (4.4) of their body weight (table 1).

In addition to this unavoidable loss, during anesthesia and surgery additional water will be lost from the lungs, particularly if dry gases and non-rebreathing techniques are used, and from exposed and damaged tissues. This is particularly true in open chest and open abdominal operations.

If there is obvious electrolyte loss, such as occurs with vomiting, diarrhea, draining fistulas, and so forth, this must be replaced, but only after careful measurement. It is far better to err on the side of too little than too much when correcting electrolyte loss in infants. Salt, for example, should be considered a dangerous drug and should be given only after careful consideration of dosage. If a young infant is dehydrated, unlike the adult, he should receive only water, not water and salt. There are three reasons why this is true.

Table 2

Additional Comparisons Between Newborn, One-Year-Old and Adult

Physiologic Dimensions	*Newborn*	*1 Year*	*Adult*
Weight in Kg.	3.0	10.0	70
Daily fluid requirement			
total (cc)	300	675	2625
cc/Kg.	100	67.5	37.5
drops/min.	12.5	28.2	.....
Maintenance electrolytes			
sodium (cc of isotonic saline)	40	90	350
potassium (mgm of KC1)	400	900	3500
carbohydrate (grams)	15	34	131
carbohydrate (cc of D_5W)	300	680	2620

Note how great an error would occur if daily fluid requirements were based on cubic centimeters per kilogram instead of square meters of body surface.

Drops per minute based on microdrip chamber delivering 60 drops per cubic centimeter.

$D_5W = 5\%$ dextrose in water.

1. The infant kidney is underdeveloped in both glomerular and tubular function until the age of six months to 2 years. These functions are usually about 20 to 40 per cent less than would be expected from the calculations based on surface area. The infant kidney is unable to concentrate urine and excrete mineral solutes. For example, the young infant can concentrate urine to only about 700 milliosmoles per liter, as compared with 1,400 mOs. per liter for the adult.

2. During and immediately after anesthesia and surgery these functions are further reduced.

3. If intake of water is low, as it might be before and during an operation, the kidney will tend to conserve what salt it can.

Before anesthesia and operation these steps should be taken:

1. To prevent dehydration as well as for other reasons, children, and especially small infants, should be placed first on the day's operating schedule.

2. Up until four hours prior to anesthesia, fluids should be forced by mouth, if retained; by the intravenous route if not.

3. If there is any reason to suspect dehydration or electrolyte imbalance, get good base-line studies, including weight, electrolytes, hematocrit, urine volume, and specific gravity if possible.

4. Losses from vomiting, diarrhea, draining fistulas, and so forth, should be measured in so far as possible, and replaced. Fortunately, most of these fluids have a composition of about 60 mEq. of sodium, 50 mEq. of chloride, and 30 mEq. of potassium per liter. Solutions closely approximating this are commercially available.

5. If measurements of these losses are not available but it is known that the infant has had, for example, persistent vomiting, it is safe to replace 15 per cent of the fluid loss as saline, preferably not stronger than one-fourth or one-fifth isotonic. Remember, the total fluid loss may be estimated at 10 per cent of body weight if the infant is very dehydrated. An infant 4 days old or less rarely needs electrolyte replacement.

During anesthesia or surgery these steps should be taken:

1. The administration of intravenous fluids, 5 per cent dextrose in water, should be started if the procedure is prolonged (more than one hour), or if the procedure is a major one, such as a craniotomy, thoracotomy, or laparotomy.

2. These fluids should be allowed to run very slowly to prevent overhydration and subsequent pulmonary edema, which can be just as dangerous as underhydration. Kidney function is depressed, as in adults, and consequently a large part of the fluids administered will be retained. Also, it may be desirable to use anesthetic drugs in solution—for example, anectine drip. These amounts are unpredictable, and so must be compensated for by a slow infusion of other fluids.

3. If the infant presents a special problem in dehydration or electrolyte imbalance, serial hematocrit determinations done during surgery can be helpful.

Following anesthesia and operation these steps should be taken:

1. Continue administering any fluids intravenously until the oral intake is retained and normal.

2. Replace any deficit acquired during the operation due to fluid losses or because of the slow infusion maintained.

3. If prolonged intravenous therapy is necessary, maintain the basal requirements. Water is calculated on the basis of 1,500 cc. per square meter per day, or 1cc. per square meter per minute. Electrolytes to be given are 30 mEq. of sodium per liter (200 cc. of isotonic saline), 25 mEq. of potasium per liter (2 Gm. of potassium chloride), 25 mEq. of chloride per liter (which is more than supplied by the above saline and potassium chloride), and 75 Gm. of carbohydrate (1,500 cc. of 5 per cent dextrose in water), all per meter squared per day. (fig. 2). Usually the three electrolytes mentioned are dissolved in 1,000 cc. instead of 1,500 cc., giving one and one-half times the minimal requirement. This allows for small losses that may have been missed and does not overload the normal kidney.

4. Determine serial hematocrit and electrolyte levels as deemed necessary.

Blood Transfusions

Hazards

Blood transfusions in infants deserve even more care and consideration than do other types of fluid therapy. There are three major dangers of transfusions. The first is the possibility of a reaction due to incompatibility. This danger can be reduced to nearly zero by very careful cross matching (not just typing of the cells and serum and careful checking of the blood slips and bottles (preferably by two persons). Even so, some rare blood groups can cause trouble. The second danger is that of homologous serum jaundice. This danger still exists in spite of much effort to eliminate it. The third is the danger of overtransfusion, leading to pulmonary edema.

There are also dangers associated with not giving blood transfusions when they are needed. Hypovolemia may lead to hemorrhagic shock, will produce too deep a level of anesthesia if the dosage of anesthetic

agents is not reduced proportionately, and will prolong the postanesthetic recovery period. Thus under-transfusion adds to the operative and postoperative morbidity and mortality just as surely as does overtransfusion.

Calculations

Here again, all measurements and calculations must be tempered by clinical judgment, and the decision of whether to transfuse or not, and how much, is sometimes very difficult.

Good base-line studies are imperative before anesthesia and before operation. Both hemoglobin and hematorcrit determinations should be done if possible. If only one of these determinations is done, however, one is committed to use the same test during and after the operation. Comparisons between hemoglobin and hematorcrit in rapidly changing states of fluid imbalance are not valid. Urine volume and specific gravity determinations should also be done, if possible, as these values will give more validity to the hemoglobin and hematorcrit determinations when used as indications of blood volume.

Table 3
Average Hemoglobin Values in Healthy Children*

Age	*Hemoglobin (Grams per 100 cc. of whole blood)*
Birth	17.6
2 days	18.0
14 days	17.0
3 months	11.4
6 months	11.5
1 year	12.2
2 years	12.9
4 years	13.1
8 - 12 years	14.1

*Based on figures many years old. With better nutrition, these averages are probably higher now.

The hemoglobin varies greatly during the first year of life (table 3). An arbitrary minimum of 10 Gm. of hemoglobin per 100 ml. or 30 per cent hematocrit may be chosen, however. If the infants hemoglobin or hemotocrit are below these limits, a transfusions of about 10 cc. per kilogram (12 per cent of the blood volume) should be given, preferably over a period of one hour or longer. This should raise the hemoglobin about 1 Gm. If it does not, a second transfusion of the same amount is indicated (table 4).

Table 4
Volume of Blood That Can Be Safely Given Single Transfusion

Age	*Total Blood Volume (cc.)*	*Single Transfusion**
0- 6 months	450	50
1- 2 years	630	65
4- 5 years	1070	100
8- 9 years	1600	150
11-12 years	2190	200

*This amount varies from about 12% of the total blood volume in the infant to 9% in the adult. The volume should be given over an hour's time or longer.

During the operation a gradual hemorrhage of 10 cc. per kilogram or more is probably indication for a transfusion. Remember that 1 ounce (about 30 cc.) of blood in a newborn infant is equivalent to 500 cc. in the adult. If it is almost certain that a transfusion will be needed, it is far better to replace the lost blood, drop for drop, as it is lost than to wait until 12 per cent of the blood volume is lost. The same figure (10 cc. per kilogram given over a one-hour period) can be used here. If the bleeding is brisk, however, this amount may be safely doubled without danger of overloading the patient. With a cardiac output six times the total blood volume, it can be easily understood why an infant cannot tolerate very much blood loss. (table 1)

Although blood loss is extremely difficult to estimate in infants, the attempt should be made. Careful weighing of sponges, measuring of suction, using little or no saline for irrigation, and weighing the infant before and after surgery, all make valuable contributions to this estimation. Frequently, however, particularly with large losses, this estimation may be so far off that one will have to rely purely on clinical judgment. Such signs as tachycardia, decreased blood pressure, pale color, poor capillary return, and poor quality of the heart sounds are valu-

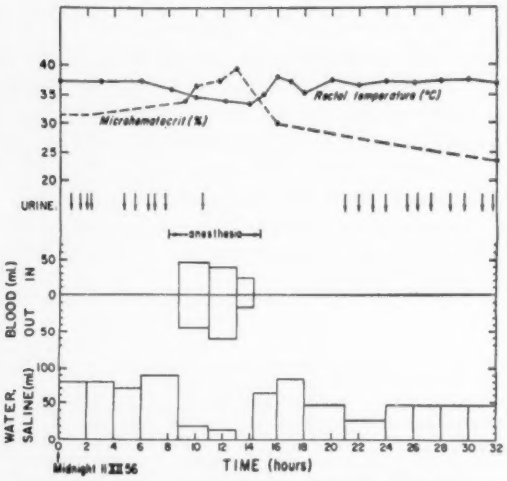

Fig. 1. An example of the value of serial microhematocrit determination in an infant (4 months old) during major surgery. Dotted line (solid points) indicates hematocrit in per cent. Note: Falsely high hematocrit due to dehydration. Patient was given additional transfusion to correct this the next day. See Reference 4 for details.

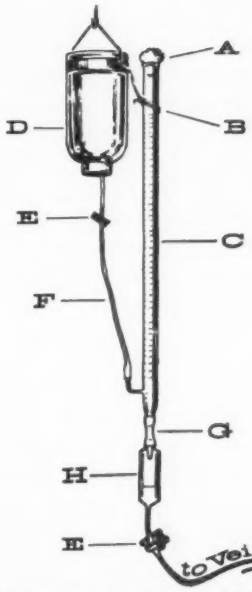

Fig. 2. Homemade pediatric blood transfusion set. A. sterile cotton plug. B. string support. C. 50 cc. standard chemistry burette (readable directly in 0.1 cc.). D. standard blood storage bottle. E. positive sealing slide clamp and fine control screw clamp. F. standard extension tubing. G. rubber tubing. H. drip chamber. Note: Blood is delivered to the patient only from the burette with the storage bottle securely clamped off.

able clinical indications of hypovolemia. Serial hematocrits using a microtechnique may be done at frequent intervals during major procedures. This has been found to be a valuable adjunct in estimations of blood volume (figure 1). It should be emphasized that serial determinations, combined with other information such as urine volumes and specific gravities, are far more informative than a single determination. The micro-method is easily repeated. The samples are small, so that duplicate or triplicate determinations may be done without exsanguinating the patient. The technique demands a free flow of blood from a puncture wound, careful sealing of the capillary tube, and some practice in reading.

Postoperatively, blood replacement should be completed. After operative fluid deficits, as described previously, have been corrected, the urine, specific gravity, and hematocrit determinations should be repeated. If the hematocrit has then dropped far below the normal or preoperative level, further blood replacement must be considered.

Subcutaneous Administration of Fluids

Subcutaneous fluid therapy has no place in pediatric anesthesia. Saline will diffuse into the subcutaneous stores and cause water and salt depletion before these depots of fluid are absorbed. This will actually aggravate the dehydration of the infant temporarily. It also presents the danger of local tissue damage and sloughs.

All fluids that cannot be taken orally should be given intravenously, preferably through large needles. Number 20 needles are used on small infants, and frequently number 18 on large infants and children. Some people object to the use of large needles on the grounds that large volumes of fluid may be inadvertently given through them. It is believed that a large bore needle through which one can pump blood in a hurry, if necessary, is the anesthetist's right hand. It would seem foolish, therefore, to handicap oneself by tying his right hand behind him, so to speak. If he uses good clamps of the screw variety and never places more than one half of the daily dose of fluid

in the bottle at one time, the danger of flooding the patient is very small. This means that no infant should have more than a 200 cc. bottle attached to the intravenous apparatus (100 cc. if he is very small or very sick). Similarly, a larger child should be limited to a 500 cc. reservoir. Special apparatus may be employed for very small infants or in special cases (Fig. 2). If needles cannot be placed in a vein easily, a cut down should be done, preferably under local anesthesia, to save anesthesia time in small infants. The use of some sort of microdrip equipment is very handy in pediatric work. Some of these sets will give 60 drops per cc., and at 1 cc. per square meter per minute, a new born infant (0.2 square meter) would receive about 12 drops per minute (figure 2). Anyone can regulate the drip to this rate without great difficulty.

Summary

Factors affecting fluid and electrolyte balance in infants and children have been discussed and methods of estimating and replacing losses sustained during anesthesia and surgery have been detailed. Special attention has been paid to the hazards involved in replacing blood. Techniques for administering both blood and other fluids are explained in detail.

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Endotracheal Intubation and Complications in the Pediatric Patient

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In the pediatric patient, to intubate or not to intubate is a controversial question; but listening to a child crow because of light anesthesia allowing reflex laryngospasm, or seeing him barely breathing because of deep anesthesia being inadequately assisted, or not at all, makes one rapidly become prejudiced in favor of the endotracheal tube.

True there are hazards and complications associated with intubation. These, however, can be minimized with experience and with constant attention to every small detail so that the advantages far outweigh the disadvantages. Pediatric anesthesia of any type is not simple. Indeed, it requires unrelaxing vigilance from the moment of induction until the child has regained all his protective reflexes and is awake again. The presence of a tube in the trachea makes this even more mandatory.

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In this age group the cardiovascular system has an inherent automaticity and regulatory power; it is the respiratory system that is prone to alterations. With the reduced margin of safety that exists in the pediatric patient, the establishment of an adequate airway is more than half the battle.

Indications

In our institution more than 60 per cent of all pediatric patients and almost all in the group less than two months of age are intubated. Definite unequivocal indications for the procedure are:

1. Operations on head and neck structures where the anesthesiologist must be removed from the operative field and has no control of the airway, unless he extends it by means of a tube.
2. Operations on patients in the prone or lateral position, which interferes with maintenance of a patient airway and

adequate respiratory excursions, as well as results in uneven distribution of pulmonary blood flow and alveolar gases.

3. Operations on the open chest in pulmonary and cardiac surgery requiring assistance or control.
4. Operations on children with full stomachs or distended bowel to prevent the dire complications of aspiration.

Advantages to Infants

Infants up to 2 years, and especially premature infants and ill children, have a smoother anesthetic course and less physiologic disturbance when the endotracheal tube replaces the conventional mask. In the infant, respiratory exchange is efficient only if he is normal or is under normal conditions. He can not meet the increased demands of illness or surgery. Chest movements are inefficient. The sternum is soft, and so is an unstable basis for the ribs. In the premature infant it may even invert with each inspiration.

The ribs of the infant are horizontal, thus eliminating the bucket-handle motion of adult thoracic respiration. Movement of these ribs, therefore, causes little increase in the size of the thoracic cage[1]. Intercostal muscles are poorly developed, while accessory muscles give little assistance. Most of the air movement is due to the diaphragm. But the diaphragm is high and its motion embarrassed by large abdominal organs such as the spleen and liver. It is further limited by the prone position as well as by gaseous distention, which results readily from swallowing air or from assisted respiration with a bag and mask. Using a small Levin tube will prevent this gastric dilatation and further limiting of diaphragmatic movement.

Lung volumes are small. The total lung volume at birth is 175 cc. This increases rapidly the first year to 400 cc., slows down the second year, increasing only to 500 cc., then increases in porportion to the weight of the child.

Tidal volume in the newborn is 10-25 cc. and in the premature only 5-12 cc. Increased demand is met by increased rate. Only after the second year can the infant increase tidal volume; then rate becomes a reserve mechanism. When one considers the anatomic dead space of 1 cc. per pound of body weight, one can see that increasing rate adds very little to increased alveolar ventilation. Increased tidal volume is what is needed.

Adding to dead space by using a mask can cause it even to exceed the small tidal volume and result in ineffective gaseous exchange and carbon dioxide retention. At one year the smallest usable mask has a dead space of 50 cc. This added to the natural dead space of 16 cc. in an infant with a tidal volume of 80 cc. results in an alveolar ventilation of 14 cc., one-fifth normal. Thus a means not only of decreasing anatomic dead space, but also of avoiding additional mechanical dead space is necessary.

The respiratory center in this group is immature and unable to withstand oxygen lack. The characteristic irregular respiration of the newborn is an anoxic pattern, and can be converted to regular respiration by 100 per cent oxygen. It is true the hemoglobin is usually fully saturated on room air, but fetal hemoglobin does not readily give up oxygen to the tissues. Adding oxygen to the inspired air increases the amount in physical solution, and thus it is immediately available for use. General anesthetics will readily depress this immature center, and assisted respiration is required in the majority of instances.

The upper respiratory tract is easily predisposed to obstruction. The infant breathes mainly through his nose, as the large tongue has a ball-valve action against the palate. The nasal passages, glottis, and trachea are relatively small and become easily obstructed by overgrowth of lymphoid tissue or a small amount of secretion. With the infant's weak muscle power, it is quite difficult to keep an open airway while rendering him unconscious. This difficulty can be overcome by intubating while he is awake.

Although the infant thorax is more compliant than that of the adult, the lungs are only half as compliant on a lung weight

basis[2]. Flow resistance, which is inversely related to the fourth power of the radius of the tube, is 15 times greater, as the infant trachea and bronchi are about one-fourth the diameter of the adult. With his increased demand for oxygen and for clearance of carbon dioxide, and with his relatively large physiologic dead space, the baby has to shift proportionally twice as much air as does the adult in order to produce adequate gaseous transfer. These three factors result in the utilization of a great deal of energy for the work of breathing even under normal conditions.

Increased resistance due to mechanical devices, partial respiratory obstruction from inflammation or accumulation of mucus, and carbon dioxide retention leading to rapid, forceful respirations greatly increase this work of breathing and may end in complete exhaustion of the child. Under such circumstances large tidal volumes at low respiratory rates will be more efficient in relation to the work of breathing as well as to better ventilation itself. But these infants respond with increased rates. We have to supply the increased tidal volume.

At this age the laryngeal reflexes are very active and troublesome. They are only obtunded in the third plane of anesthesia, so that reflex laryngospasm can be precipitated easily if the anesthesia is light. They also prolong induction with ether. With their small functional residual capacity and residual air and their high consumption of oxygen, infants have very little reserve against anoxia resulting from laryngospasm. Alveolar oxygen is totally depleted in 2 to 3 minutes in the nonventilated infant lung.

Intubation in the infant, therefore, is indicated (1) to overcome the anatomic obstruction of nose, tongue, and larynx; (2) to eliminate mechanical dead space and decrease anatomic dead space; (3) to permit minute-to-minute control of respiration as well as the plane of anesthesia; and (4) to facilitate the effective assisted or controlled respiration so necessary to overcome the inefficient chest movement and decrease the work of breathing, thereby preventing undue fatigue resulting from the increased resistance. Increasing the tidal volume and thus increasing alveolar ventilation is the most important principle in pediatric anesthesia.

Advantages to Older Children

Older children, as well as infants, benefit from intubation for the preceding reasons, although probably it is not as mandatory for them. Prolonged procedures in this age group definitely require assisted respiration and very light planes of anesthesia. The endotracheal tube permits this assisted respiration without distention of the stomach, and allows a ligher plane of anesthesia to be maintained without worry of laryngospasm, stridor, reflex apnea, or aspiration of vomitus. In intraabdominal procedures, the use of muscle relaxants can be used safely if the trachea is intubated. Troublesome traction reflexes associate with laryngospasm may still occur, but the airway is patent and anesthesia can be deepened quickly[3].

Precautions

Just because a tube is in the trachea one cannot happily go one's way without a thought about obstruction. This still can happen. The trachea in the newborn is relatively short—about 4 cm. It does not increase in length rapidly and at 2 years is only 5 cm., at 6 years 5.7 cm. With too long a tube one can easily intubate a bronchus, thus causing atelectasis of the opposite lung. This can occur on either side, as each bronchus branches at an angle of 55 degrees from the trachea. Only after the third year does the right bronchus form a more acute angle with the vertical than does the left, and is more readily intubated. Marking the tube 1 inch from the end and inserting it to that mark, then checking each side for breath sounds insures against bronchial intubation.

Obstruction of the tube can result from kinking either in the pharynx, at the lip margin, or at the connection with the angle piece. It is wise to check the patency after the tube is in place by running a measured catheter through its entire length. Placing two towels under the shoulder hyperextends the neck and straightens out the pharynx.

A bite block will prevent pressure on the tube by the teeth. Constant monitoring of breath sounds and heart rate with a precordial stethoscope is the sine qua non of good pediatric anesthesia. Tubes can be blocked with foreign material before insertion or can become blocked by inspissated mucus during long operations with the use of high flow of dry gases. This can be prevented by frequent aspiration with a measured catheter; otherwise reintubation will become necessary during the operation.

Insertion of a tube decreases the diameter of the airway, and in the little ones this can be an important factor in adding to resistance to air flow. According to Poiseville's law, resistance varies indirectly with the fourth power of the internal radius of the tube, so the largest, thinnest-walled tube that can be easily inserted should be used and respirations assisted. Trauma can result from rough manipulation, especially in a poorly relaxed child. Sore throat, hoarseness, or coughing may follow. Infant gums, which are a series of segments of active vascular tissue, can be indented easily. If distortion should occur, the gum should be remolded. Accidental removal of teeth, especially the central incisors, occurs readily around the sixth or seventh year, when their deciduous roots are absorbed and the teeth are only superficially embedded. One should make every effort to locate the dislodged tooth even if an x-ray is required. A tooth left in a bronchus can lead to medicolegal complications.

Hemorrhage can result from catching the lip between a tooth and the laryngoscope, from gouging out a piece of the posterior pharyngeal wall with the tip of the blade, or from removal of adenoid tissue by a nasal endotracheal tube. Using a light, easily handled laryngoscope with a narrow blade having a blunt end will tend to reduce trauma.

Postoperatively, supraglottic or subglottic edema can occur. Although the mucosa is rigidly adherent to the posterior epiglottis, it is loosely attached anteriorly and along the aryepiglottic folds. Edema in these areas can push the epiglottis in and back to occlude the larynx. Soft areolar tissue below the level of the vocal cords can become edematous and can occlude at the cricoid, the smallest and most rigid part of the trachea in children. In infants, where the diameter of the cricoid is 4 mm. and the cricoid area is 14 mm. squared, 1 mm. of edema can decrease this opening to 5 mm. squared, or to 35 per cent of normal. In adults, the same amount of swelling would decrease the opening only 19 per cent.

Edema follows the forced insertion of too large a tube into the trachea, prolonged tubation, frequent movement of the larynx on the tube, or infection. Infection, perhaps, is the most frequent factor implicated in this complication[4]. It can follow the use of contaminated tubes or lubricants and readily occurs in children with pre-existing upper respiratory infections or fluid imbalance.

Hoarseness and laryngeal stridor are occasionally seen, but severe laryngitis is not too common if one is careful. Retraction of the supraclavicular and intercostal spaces indicates inadequate flow rates, and rapid respiration indicates carbon dioxide retention. Constant vigilance is needed, as the rapid breathing through a narrow glottis can result in exhaustion from pulmonary edema.

To minimize this edema, intubation should be gentle and the patient well relaxed. Bucking or straining on the tube should be prevented by adequate depth of anesthesia and minimal movement of the head or tube. Pliable plastic tubes should be used, as these will mold to the shape of the trachea with the heat of the body. Rigid rubber tubes should be shunned, since they cause pressure on the posterior pharynx, arytenoids, and anterior tracheal wall. The tube should be scrupulously clean having been washed with soap and water, rinsed, soaked in Zephiran for 30 minutes, rinsed again, and stored in a clean case. Cuffs are not needed in children, and only cause additional pressure.

Postoperative Care

Postoperatively, all infants and the children subjected to prolonged or traumatic intubation should be placed in a cold, moist

atmosphere for 12 to 24 hours. This can be satisfactorily supplied by the Isolette in infants and the Croupette in older children. Not only will the edema subside, but the lowered body temperature will decrease the oxygen demand and carbon dioxide production, with subsequent quiet, slower respiration. Sedatives are helpful in slowing respiration and preventing pulmonary edema. They should be given only if there is no respiratory obstruction and the restlessness is not due to hypoxia. Atelectasis is prevented by frequent coughing and endotracheal suction. Adequate fluid intake is important both pre- and postoperatively, as dehydration increases temperature and respiratory rate and causes further irritation of the laryngeal edema. If no improvement occurs in six hours, a tracheostomy should be considered. It should be done earlier if the respiratory rate remains over 36 and the pulse rate over 140.

Objections

Prolonged inductions in order to attain third plane for an atraumatic intubation is no longer an argument against intubation. Children below the age of 6 months can be intubated awake, while the older child is relaxed by the use of intramuscular or intravenous succinylcholine. Topical agents applied to the larynx allow many patients to be intubated with the use of cyclopropane or fluothane alone. Both Pontocaine, 1.5 mg. per pound, and Xyloccaine, 15 mg. per pound, have been found to be satisfactory and safe.

Spasm can occur on extubation, and this period may be as dangerous as intubation. Some believe the tube should be removed while the patient is still deeply anesthetized, but the possibility of vomiting and aspiration is very real at this time. We extubate when the patient is in light anesthesia and has regained his swallowing reflex. Laryngospasm will not occur if the respiratory center is not obtunded by anesthetic agents. All secretions from the pharynx should be removed before extubation, so that none is left to irritate the vocal cords. The previously mentioned topical agents will help by suppressing the laryngeal reflex. The patient should be well oxygenated before extubation, and the practice of dragging the suction catheter out with the tube is to be deplored[5]. Suction can deplete the oxygen reserve in the lung, and if a complete laryngospasm then occurs after extubation, severe anoxia and cardiac arrest result. Immediately after extubation, 100 per cent oxygen should be given by bag and mask. Oxygen is the best prophylactic as well as the best treatment for laryngospasm.

The last objection to intubation is that it is difficult. Intubation is no more difficult in the young than in the adult if one remembers the difference in anatomy. The larynx is more anterior and cephalad, with the cords at a 45 degree angle to the anterior pharyngeal wall, running upwards and posteriorly. This is due to the proximity of the hyoid bone to the thyroid. The epiglottis is stiff, U shaped, and not broad and mobile as the adult's[6]. The curved blade increases further this anterior displacement, while it is difficult to lift the epiglottis with the straight blade and the arytenoids are easily traumatized. The straight blade, however, used in the vallecular space anterior to the epiglottis and pressed in a posterior direction will bring the larynx easily into view. Because of the concavity and slight inferior anterior attachment of the cords, the tip of the tube will impinge on the anterior wall. Lowering the laryngoscope will now straighten out the acute angle of larynx with the trachea, and the tube will easily advance down the trachea. Except for the constriction at the cricoid, other resistance such as subglottic web or tracheal atresia is rare. Thyroglossal cysts, cystic hygroma, and mucous cysts of the epiglottis are also rare, and do not make intubation difficult.

Summary

With intelligent use, intubation facilitates all pediatric techniques. Safe light planes of anesthesia can be maintained without fear of respiratory aberrations. The tube has been the major factor in lowering surgical mortality by making anesthesia more physiologic, more controllable, more predictable, and more reversible. Disaster can be

better avoided in the intubated infant and child.

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Anesthesia for Pediatric Orthopedic Procedures

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The fact that mortalities due to anesthesia occur more often in the first decade of life than any other[1] cannot be ascribed to status thymicolymphaticus or any other pathologic condition, real or apparent, which is peculiar to the child. With but few exceptions, usually embracing congenital anomalies, the myocardium is functionally strong and contractile, the arteries are patent and pulsatile, and the vital organs are richly supplied with capillary plexuses. Moreover, pulmonary disease which limits the normal oxygenating function of the lung is rare in the child presenting for operation. The fatal complications occur for the most part because the margin of allowable error in providing anesthesia for the child is less than in other age groups. Hypoxia due to acute or chronic respiratory tract obstruction can be precipitated more easily in the child because of the small anatomic size of the airway structures. Acute lack of oxygen wrecks the machinery of cellular metabolism more rapidly because the oxygen in the functional residual dead space of the lung is exhausted quickly from the small lungs of the child. Because of the small size of the child, overdosage with potent anesthetic drugs can occur rapidly, and often with virtually no premonitory signs.

These dangers are common to all children subjected to anesthesia. Certain practices tend to protect the child from these hazards. Among them may be included an adequate preanesthetic evaluation and the provision of proper preoperative medication.

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Clinical Evaluation

In addition to the physical examination performed during the clinical evaluation of a child for elective operation, one is concerned about the presence of an intercurrent infection associated with upper respiratory tract obstruction or pyrexia. Children with fever who are perhaps dehydrated and who are then exposed to drugs such as ethyl ether are prone to develop convulsive episodes during operation: the danger of these is well known. The hazard of anesthetization in the presence of inadequate amounts of circulating hemoglobin is beginning to be recognized more fully. If the hemoglobin is reduced by one-half, only half the physiologic amount of oxygen can be carried in the blood stream to the vital organs, even when all other conditions are ideal: under anesthesia these conditions are often not ideal. The hemoglobin value of a child should be at least 10.0 Gm. per 100 cc. of blood before anesthesia and operation are attempted. In orthopedic anesthesia, one is particularly concerned about the child suffering from cerebral palsy. In these patients secretions are more likely to develop during anesthesia, and those with more severe involvement require and tolerate only low concentrations of drugs. It is therefore important to evaluate the degree of central nervous system abnormality in these patients.

In emergency operations—and these are prevalent in orthopedic practice—the clin-

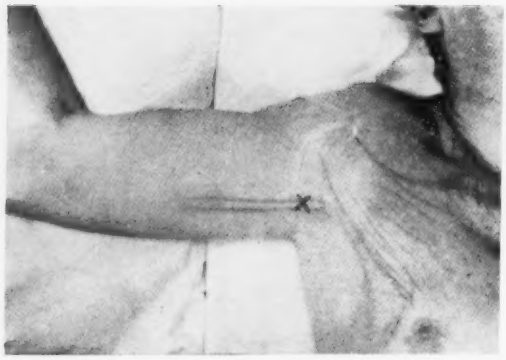

Fig. 1. Superficial landmarks for blocking major nerves in upper arm.

ical evaluation, in addition to the above factors, must include careful note of the prior ingestion of food or fluids. If the child has eaten or consumed fluids within the four hours prior to or at any time since the accident, it must be presumed that he has food or fluid in his stomach. As a general rule, digestive processes stop at the time of a psychic and physical insult. There can be no rationalization in this matter and no compromise. Any type of general anesthesia under these circumstances will endanger the life of the child. The proverbial "whiff of gas" or the "minute or two of intravenous anesthesia" are just as dangerous as the "major" anesthetic for a major operation. Neither the surgeon nor the anesthetist should be trapped or enticed into precipitating a preventable death[2].

What can be done under these circumstances? There are several potential alternatives. Ideally, pain can be relieved with some form of regional analgesia. With adequate preoperative medication, such a choice is not impractical. For the lower extremity, spinal analgesia is a simple technique[3], and for the upper extremity block of the major nerve trunks in the upper arm is valuable and free of complications (fig. 1)[4].

A second approach is to induce vomiting in the child. This must be done throughly and therefore cannot be done gently. Regurgitation and aspiration of liquid acid in the gastric contents during operation is just as dangerous as the inhalation of solid particles. The best way to evacuate the stomach is to pass a large stomach tube and then employ repeated gavage, as in a case of poisoning.

A third alternative is to postpone operation for 8 to 10 hours, attempting to sedate and induce sleep in the child during the interim. This method is not foolproof, as the stomach may not be empty even after this period of time. If there appears to be no other choice, an open drop vinyl ether—ethyl ether sequence may be attempted by an expert anesthetist. This technique should be considered a final, remote alternative. Theoretically, when this method is being used, if the patient is going to vomit he will do so as he is passing from the second to the third stage of anesthesia, at which time the vomiting reflex is stimulated with this type of anesthesia. Usually, but not always, the protective laryngeal reflexes are still active at this stage, so that aspiration is less likely. However, severe hypoxia will accompany the protective laryngospasm. Emergence from anesthesia is perhaps even more dangerous when this type of anesthesia is employed in a patient whose stomach is not empty.

Preoperative Medication

It is important for the emotional equilibrium of the child that he be given the benefit of preoperative medication. Many different schedules have been suggested; the aim is to have a child who comes to the operating room sufficiently carefree to doze when left alone, but responsive in a non-apprehensive manner to the spoken word. We have found that these ends can be met by administering a short-acting barbiturate (pentobarbital) along with a narcotic (meperidine) and an anticholinergic (atropine or scopolamine, preferably the latter) (table 1). Proper dosages according to weight are important. Scopolamine not only produces a good drying effect, but also has a cerebral sedative action which reinforces the other sedative drugs. In orthopedic patients who frequently return to the operating room several times, such preoperative medication obviously is beneficial. If the child is being sedated prior to regional analgesia, the recommended dosage of preoperative medication can be increased safely.

Table 1

Suggested Dosage of Preoperative Medication in Children

Age	Weight (Pounds)	Nembutal Oral* (Mg.)	Morphine (Mg.)	Demerol (Mg.)	Scopolamine (Mg.)	Atropine (Mg.)
Up to 6 mos.	7-16				0.1	0.1
6-12 mos.	17-19				0.1	0.15
12-18 mos.	19-24			13	0.1	0.15
18-24 mos.	24-27			13	0.15	0.2
2-5 yrs.	27-40	15	0.5	18	0.2	0.2
5-8 yrs.	40-55	30	1	25	0.2	0.3
8-10 yrs.	55-65	45	2	37	0.2	0.3
10-12 yrs.	65-80	60	3	50	0.3	0.4
12-14 yrs.	80-90	60	5	75	0.4	0.4
Adult	over 90	90	8:15	100	0.4-0.8	0.4-0.8

* Rectal dosage about two times above doses.

1. Individualize doses according to physical and mental status of patient.
2. Scopolamine has central sedative effect and counteracts respiratory depression of narcotics.
3. Doses of barbiturate indicated do not depress respirations.
4. Administer barbiturate two hours preoperatively; morphine or Demerol, scopolamine or atropine on call.

Basal anesthesia induced by the rectal administration of Avertin or an ultrashort acting barbiturate (thiopental) has achieved a certain popularity among orthopedists as a substitute for preoperative medication. It is true that this technique provides a pleasant way for the patient to go to sleep, but it has the disadvantage of continuing action for four to eight hours, so that often the patient is not alert for several hours postoperatively. With the new and pleasant methods of anesthesia induction now practiced in children, we do not believe that the incorporation of basal anesthesia offers advantages.

Maintenance of Anesthesia

Ethyl ether is probably the commonest drug employed for maintaining anesthesia in children, at least in this part of the country. For the administrator it provides a relatively wide margin of safety, but it is explosive, it is unpleasant for the patient when employed for induction, and its administration is associated with a high incidence of nausea and vomiting postoperatively. Explosive anesthetic drugs provide a real problem in orthopedic surgery when so frequently it is desirable to use the cautery. In our clinic this problem has been solved to a large degree by the introduction of Fluothane into anesthetic practice[5]. This fluorinated compound is nonexplosive and, when used with properly calibrated vaporizers and, with due respect for its potency, is proving to be of great value in orthopedic

surgery. It provides a rapid, smooth induction and will permit in safe concentration a degree of muscle relaxation which is satisfactory for most orthopedic procedures. In our hands it has proved to be particularly useful in children. Recovery from anesthesia is extremely rapid, the patient being oriented as to time, place and person within 10 minutes of the end of operation. The incidence of postoperative nausea and vomiting is less than 5.0 per cent.

One problem peculiar to orthopedic surgery is the frequent employment of tourniquets on the extremities. In children the period associated with the release of the tourniquet may be hazardous, as it is often associated with a marked hypotension. The reason or reasons for this cardiovascular upset are not clear: it may be due to the sudden increase in the circulatory bed of the patient; it could result from the sudden release into the general circulation of partially metabolized substances from the anoxic extremity; it could be due to the sudden increase in circulating potassium which is apparently associated wtih release of tourniquets. It is important to be alert to this possibility of trouble: it can be ameliorated possibly by gradual release of the tourniquet over a period of one to two minutes. If two tourniquets have been employed, a five-minute interval should separate the release of each.

Minor Surgery

Many orthopedic procedures can be categorized as minor, in that only a short time is required for their completion. However, the administration of anesthesia which may be required can never be considered a minor procedure, particularly in children. Catastrophes are just as likely to occur in a short procedure as in a lengthy operation: the patient travels over much of the same anesthetic journey in each instance. We would therefore urge that minor operations involving anesthesia be conducted where full facilities are immediately available to take care of emergencies that may arise. An inadequately equipped outpatient clinic without trained personnel is not the place to administer general anesthesia. Take the patient to the operating room where full facilities are available.

As one might expect, anesthesiologists are finding the new drug, Fluothane, of particular value in short orthopedic procedures. The rapid recovery from anesthesia and the minimal nausea and vomiting permit the early release of the patient to his parents.

Conclusions

When all is said and done, the safety of the anesthetic administration depends directly on the knowledge, skill, and attentiveness of the individual at the head of the table. We in the specialty of anesthesia are attempting to improve this factor of safety constantly. Cooperation and communication between the surgeon and the anesthetist relating to the peculiar problems involved in different patients will go far towards raising the standard still further.

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I have no quarrel with the research institute and with people who want to devote a great deal or all of their time to research; however, I do know that the future of medical education is going to require a re-establishment of a better balance between the teaching, research, and patient care.—Hinsey, J. C.: Ingredients in Medicine Research—The Story of a Method, The Pharos 24: 14 (Jan.) 1961.

News and Views on Present and Future School Health Programs

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CHICAGO, ILLINOIS

At this meeting we have heard authoritative discussions about dental disease, hearing loss, visual defects, accidents, programs designed to develop youth fitness, continuous health supervision of school age children, and assistance to children who have special needs. These kinds of problems are discussed in most school health conferences. They are thought to be problems of children, but actually they are problems of adults—the adults who are responsible for these children.

Current Needs

The objectives indicated by the papers we have heard are reached because of, or in spite of, the attitudes of adults and their ability to communicate with each other. Four major problem areas can be mentioned: (1) The need for the establishment of a child-centered program; (2) the need for more personal and family responsibility and for getting away from the concept that the only way a job can be done is with federal grants or state appropriations; (3) the need to develop the ability and the willingness to communicate across professional lines and with the consuming public in order to develop cooperation; (4) the need for a missionary zeal in the promotion of medically and educationally sound school health programs. A word on each of these might illustrate the point.

Child-centered programs

Competition between schools rather than an effort to improve the child and make him a more effective citizen too frequently characterizes our school health programs. Since the child is the only possible excuse for having a school health program, he should be the center of the program, the objective of all effort. If we do for the child those things which will protect his health and aid him to live more effectively, and at the same time give him the understanding, the motivation and the independence that will permit him to assume responsibility for himself, his family and his community, we have gone a long way forward.

Family responsibility

Federal grants, as we know them in public health work, were started during the First World War and became firmly established before 1940. Many agencies now feel that the only possible way to accomplish an objective is with a federal or state grant. The development of individual initiative, the cultivation of private grants, and above all the encouragement of family responsibility to care for their own seem to be outdated. Actually, when the care gratuitously given to young people is increased, they are increasingly prone to lean upon government for more and more and to be less willing to assume responsibility for themselves. Even though there are occasions when governmental assistance is necessary in the development of a program, we must be extremely careful lest we thereby prevent the individual and his family from accepting their proper responsibility.

Communication

Each profession has its own language. this language is as foreign to non-members of the group as though it were the language of another country. Communication in intelligible terms, therefore, becomes rather difficult, particularly when the same word holds different connotations for the various professions. Moreover, the educational experiences of one profession differ widely from those of another. It is difficult for the teacher to appreciate the doctor's day, and likewise for the doctor to know all that goes on in the teacher's life, even though each

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Delivered at the Third North Carolina State Conference on School Health; Raleigh, North Carolina, October 22, 1960.

From the Department of Health Education, American Medical Association.

has spent some time in the rooms devoted to the others occupation. In spite of these language problems, understanding and cooperation among professional groups and community organizations is necessary to a sound school health program. Every effort should be made to develop an understanding that will permit intelligent working together.

Promotion of sound practices

In this world of superlatives, where nothing is large and everything is giant, it takes extraordinary persuasive power to interest communities in the support of such prosaic activities as health services for keeping well children well. For that matter, difficulty often is encountered in the development of services that will help to discover those who are not well. Not infrequently unsound programs develop because of enthusiasm that is not founded on fact. Therefore, it seems incumbent upon all concerned to devise programs that are both educationally and medically sound, and to promote them with a zeal that will insure their adoption despite lethargy or open antagonism on the part of some poorly informed citizens.

Views of the Future

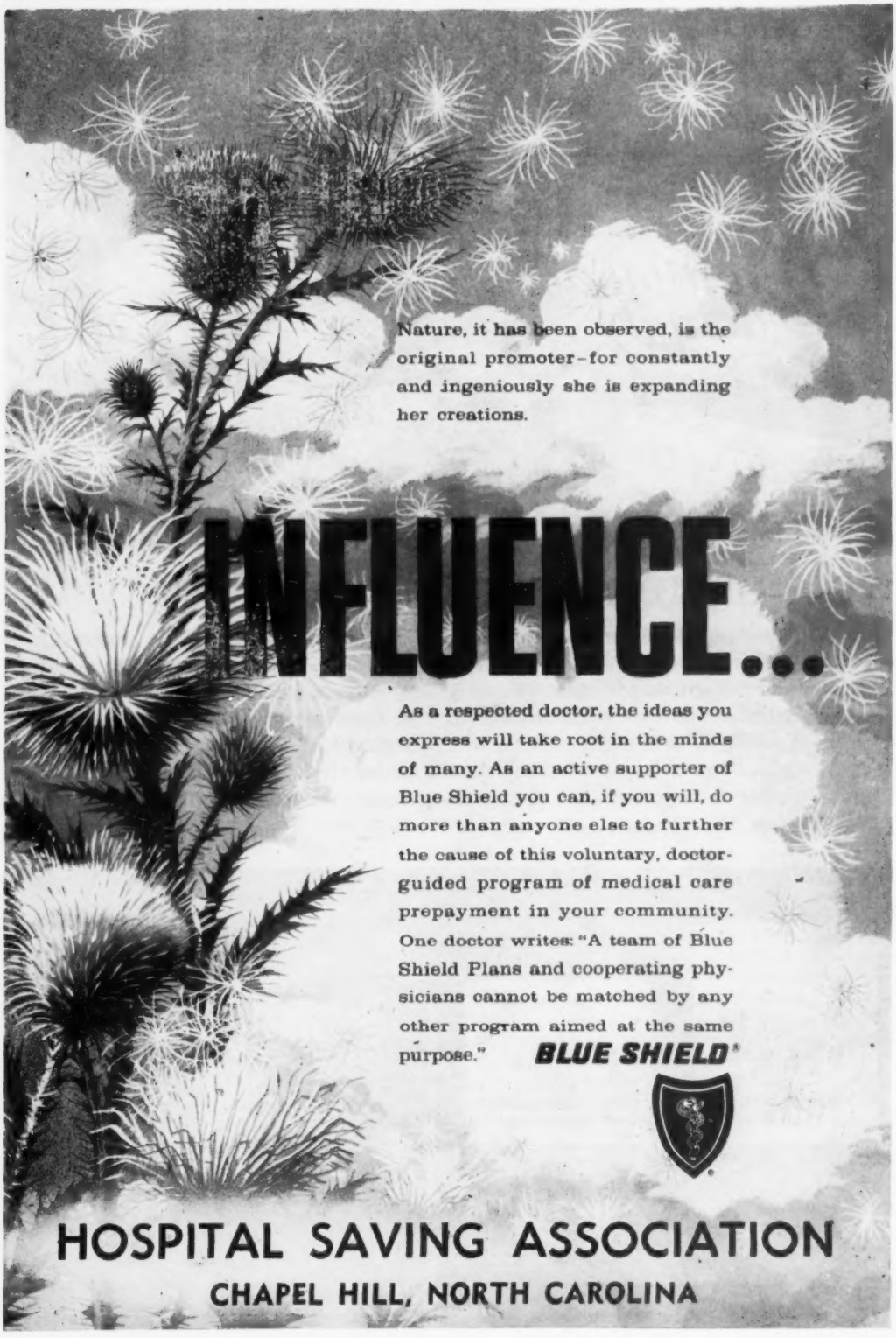
Thomas Huxley once pointed out that every new concept begins as hearsay, evolves into orthodoxy, and ends as superstition. In school health we are now somewhere between the first and second stages. An occasional physician, as well as an educator here and there, regards what we consider good school health as rank heresy, though a great majority of thinking professional people accept it as orthodox. It is a part of the good school. The better programs have a smooth relationship with community organizations and governmental agencies as well as with the practicing professions involved in the health service of children.

To prevent the current orthodoxy from degnerating into superstition, we must consciously keep alive the sound practices of the second stage. To do this in a changing world can be difficult. Let us look into the crystal ball to see if the reflection of what has gone before can give us an insight into what the future might hold. To step into the future effectively, one must have one foot firmly planted on the present.

Medical association activities

At each National Conference on Physicians and Schools information is reported regarding the school health activties of the several state medical associations. The report for the Eighth National Conference to be held next March will include the following activities engaged in by medical associations in the United States:

1. Cooperation with or membership on a state school health advisory committee.
2. Conferences between physicians and educators.
3. Promotion of sound immunization practices.
4. Conferences on athletic injuries and medical aspects of sports.
5. Advice on safeguards for contact sports in the elementary and junior high schools.
6. School health workshops for school administrators.
7. School health workshops for teachers.
8. Advisory services to school health committiees of local medical societies.
9. Continuous health supervision of children as recommended by the National Congress of Parents and Teachers.
10. A guidebook showing school health services available from various organizations, agencies and professional personnel.
11. Definition and publication of the professional qualifications and functions of a school physician.
12. Reorganization of existing health programs. Conferences on youth fitness.
13. Promotion of health, safety, and physical education in the grade schools.
14. Promotion of of physical education and sound health instruction in the secondary schools.
15. Preparation of articles on school health for publication in education journals.
16. Advice on nutrition. Visual and hearing programs.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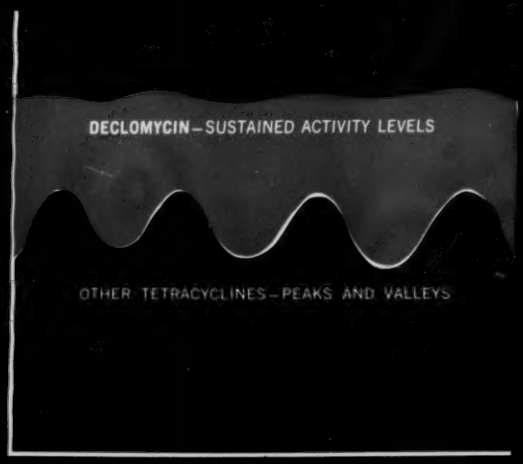

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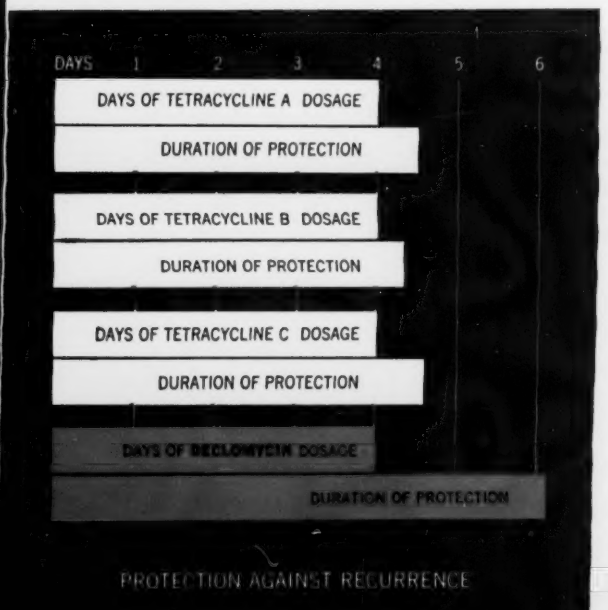
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DAYS OF TETRACYCLINE A DOSAGE
DURATION OF PROTECTION
DAYS OF TETRACYCLINE B DOSAGE
DURATION OF PROTECTION
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5,000	7,500 to 15,000	75.00 Weekly	114.00	57.50	152.00	76.50
5,000	10,000 to 20,000	100.00 Weekly	150.00	75.50	200.00	100.50
5,000	12,500 to 25,000	125.00 Weekly	186.00	93.50	248.00	124.50
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Many other reported activities based on local situations were unique to the state reporting. These programs indicate the potentialities of medical association school health committees, since in most instances fewer than half the medical societies, and occasionally only one or two, are now performing this particular kind of an activity. There are areas in which medical associations can extend their advisory service into activities already known and found necessary.

Selected prophesies

For an unknown future, however, we must appreciate certain factors that even the experts can only guess at. In a symposium on the future, ten physicians looked at the future, a few of whom I should like to quote[1]

Captain Normal L. Barr, (MC) USN, states:

> Past experience gives us confidence that diseases, one by one, will be brought under control. We look forward to a Utopian time when surgery will be required only for the correction of malformations and the repair of trauma, when heart disease and cancer will fall to the bottom of the 'causes of death' list.
>
> But as we can expect a reaction for every action in the physical sense, we must expect a reaction for these advances. Removal of the causes of death removes also the mechanisms that nature uses to control the world population. We are faced with a world population that will double at least each 50 years and lead to the horrors of super saturation. The eventual alternatives appear to be population control or the natural development of other automatic selection processes. The physician holds the primary concern, knowledge and responsibility in this difficult area and it will occupy more and more of his time and attention.

Associated with this concept of population explosion is the point of view of William B. Bean, M.D., who heads the Department of Internal Medicine of the University of Iowa College of Medicine. He says that

> in seeking the Utopia of things we have forgotten values. Education in schools cannot make up for its deficiency at home but should aim to inculcate a yearning for excellence, a desire for sound knowledge, a discipline which recognizes the necessity for hard work instead of the deadening short cut, the sense of personal responsibility and love of our fellow man, not the vague love of mankind. A return to drill in fundamentals, for the very gifted, and study of the needs and limitations of the retarded, should send to medical schools students prepared to cope with the rising tides of facts necessary to practice medicine at once humane and scientific.

He later points out that "The physician of tomorrow must employ the marvels of a busy and tireless science for he may not escape blame for negligence if he permits suffering or death because of ignorance. Unless we guide the next generation to improve upon our own, the passage of time will not mean progress."

In the same symposium, F. J. L. Blasingame, M.D., Executive Vice President of the American Medical Association, stated:

> We must develop effective systems of disciplining unethical physicians and restraining those whose actions are damaging to the entire medical profession.
>
> Casting its shadow in the years ahead is the threat of government domination. Our job is to prove to the American people and Congress that we and our allies are capable of conducting a program that is meeting, or can be expected to meet, the health needs of the people.

These three opinions—one looking to an enormous change in population, a second pleading for improved education that will produce better physicians, and the third pointing out problems that these physicians are likely to face in regard to their patterns of practice suggest some future difficulties related to the school health program.

For example, the population experts tell us that by far the greater portion of the population of the United States will be living in urban centers—in fact, in great metropolitan areas. What we now know as rural America will be rapidly depopulated. At one time cities were breeding places of disease and the country was looked upon as the seat of health. Now it is the city that provides for health service, the ongoing programs of prevention, and the better oriented educational programs that will help a younger generation live effectively

and efficiently. Living in cities, however, will require an increasing sophistication which comes only from an extension of education and a willingness to accept the responsibilities of group living.

At the last meeting of the Joint Committee on Health Problems in Education of the N.E.A. and A.M.A., an educator, Kenneth E. Oberholtzer, Ph.D., and a public health physician, Granville Larimore, M.D., attempted to look into this same crystal ball as a guide to the thinking of the Joint Committee on health problems of concern to the Committee's program. Dr. Oberholtzer pointed out that health education was a shared responsibility of the schools, and not a primary responsibility. This, however, does not lessen its importance, but puts it in a somewhat different context from other subject matter in the school curriculum. The timing of health education is extremely important. Every opportunity should be seized to make use of such factors as teachable moments, curiosity, and individual differences. But Dr. Oberholtzer points out that this is a an educational program for parents as well as for children. It starts in the pre-school period. The parent teaches the child and continues to teach him throughout life. Health behavior is almost exclusively a product of our culture.

Dr. Larimore pointed out the close relation between mental health and some of the new developments in psychiatry, in drug therapy, and in the recognition and handling of such problems as alcoholism and narcotic addiction. These new concepts have changed the management of patients both outside and inside hospitals, and emphasize the role of mental health in the community. The new discoveries regarding the relationship of viruses to cancer may reveal leads to the cause of some tumor formation. Communicable diseases are still of concern in education because the child is more frequently involved. A breakthrough leading to the prevention of such viral diseases as measles and chicken pox similar to the recent discovery of control methods for poliomyelitis may be imminent. Environmental health problems, particularly air pollution and radiologic hazards, are on the increase. We need to know more about nutrients and their effect upon the body in order to have a better nourished population in the future. Chronic diseases bring such problems as rehabilitation and the financing of medical care, which are particularly important in a society where the dependency of both young and old is considerably longer than at any time in history. Medical care is in a process of change and can be expected to undergo further changes in the future, with continued growth of the insurance concept which allows people to share the cost of medical care.

Factual memory without understanding is one of the difficulties of health education. Because counseling and guidance in health are extremely important, we should look with favor upon school nurses who work as school counselors and guidance personnel with families and physicians. There is a great need for more guidance from physicians concerning nutrition, ways of living, the preparation of food, air pollution, gadgets, automation, and the nature of exercise. All of these are increasing in importance with our expanding population. Their relationship to health is a real problem.

Recommendations of the White House Conference

The reports coming from the recent White House Conference on Children and Youth suggest areas that should concern us as administrators of school health activities. Among these are the environment of the school, community coordination to provide more effective service, recognition of the family as the basic unit of our society, and the promotion of this concept through family life courses which prepare for marriage and parenthood. The curriculum should provide opportunities for the student to develop an understanding of the basic elements of health protection and an appreciation of physical education. Special educational services, pupil personnel services, leisure activities, and community programs are all a necessary part of this picture. A careful study of the report of

the White House Conference on Children and Youth will suggest many program areas in which local support will accelerate implementation. Working with the local committees to implement recommendations of the White House Conference should do much to strengthen existing programs for the protection of the health of children.

Conclusion

Looking to the future, we can be sure that there will be a change. There is every reason to believe that much that is now orthodox will gradually come to be regarded as superstition, as a new orthodoxy develops out of present heresy and becomes the accepted standard for program planning. We must make every effort to understand what our colleagues of other professions are talking and thinking about when we meet together in the interest of these children and schools. And last but not least, we should use every opportunity to promote sound school health activities which express the best in both medicine and education.

Reference

1. Ten Looks At The Future. G.P. 19: 135-146 (Jan.) 1959.

Carcinoma of the Penis

W. C. Mebane, M.D.
Wilmington

Although the last two decades have produced a vast amount of literature on malignancy, relatively few papers on cancer of the penis have appeared. In this country, where hygienic practices are meticulous, the incidence is comparatively low. Nevertheless, the disease remains an unpopular one for the surgeon as well as for the victim.

The disease differs from most forms of malignancy, for it is preventable and in many cases curable. This is to say that circumcision in infancy renders complete immunity for life. Circumcision in childhood, followed by good hygiene, provides almost complete immunity. The smegma bacillus growing under a long, moist foreskin poses a strong carcinogenic agent in a fertile soil, yet the public health authorities have had little to say on the prevention of this preventable and mutilating disease.

Cancer of the penis lends itself well to surgical therapy and to radiation. It is well situated for surgical attack. It is an external growth, can be recognized early, and involves an organ which is not essential to life or to urinary comfort. All or any part of the penis may be removed without loss of or serious effect on urinary control. If the lesion is discovered early, sexual function may be impaired but not completely lost. Even in advanced cases, the surgical outlook is good, because the localization of lymphatic drainage makes block dissection feasible in most cases. The femoral, inguinal, and part of the hypogastric glands are readily dissected and removed along with the shaft of the penis.

Technique

It is our practice to amputate the corpora cavernosa 2 cm. proximal to the lesion. The urethra, surrounded by the corpus spongiosum, is dissected free and brought out on the skin of the perineum or scrotum. When the growth involves the entire shaft and a portion of the skin and anterior surface of the scrotum, the scrotum is divided in half, the corpora are completely removed from the ramus of the pubis, and the involved skin is resected. A perineal meatus is established. The scrotum is then reconstructed by suture. If part of the shaft can be left, it is well not to ligate the dorsal arteries and veins of the penis. The inguinal flaps frequently slough when extensive ligation is done. If the skin flaps on the penis or inguinal region slough, they can be easily covered by grafts.

An ample length of urethra is cut and is split into two strips 1 cm. long. These flaps are sutured to the skin with 000 silk to prevent retraction and stenosis. Use of a

Table 1

Operative Results in Ten Cases of Cancer of the Penis 1944 - 1960

Case	Age (Years)	Results	Survival (Years)
1.	40	Living and well	16
2.	70	Died two weeks after biopsy	
3.	55	Living and well	12
4.	67	Living and well	9
5.	65	Living and well	9
6.	53	Living and well	8
7.	42	Died in 1953 with pneumonia	1
8.	69	Living and well	6
9.	68	Died in 1960 with coronary occlusion	6
10.	22	Living and well	1½

Foley catheter for five days protects the wound from urine. Urinary control is good when the catheter is removed.

Case Reports

Case 1

The patient, a 40 year old Negro man, was admitted on August 3, 1944, because of a large cauliflower growth, very foul, involving the entire glans penis. The growth, which he had had for six months, was about the size of a lemon, and had completely destroyed the glans penis and half of the shaft. The inguinal glands were enlarged and firm. A complete amputation of all the penis and resection of the groins was done in August, 1944. Two of the five lymph nodes from the inguinal region showed carcinoma. The patient appears well today, with a well functioning urethra, 16 years after his operation.

Case 2

A 70 year old Negro man was admitted on August 4, 1955, having had a growth on the penis since June, 1934. A biopsy was done, but the patient died shortly afterward with general malnutrition and chronic anemia. No definitive surgery was performed.

Case 3

A Negro man, aged 55, noticed a growth on the penis in March, 1946, and came to the hospital for treatment on March 28, 1947. The inguinal glands were enlarged. The primary growth was large and fungating, and had destroyed the glans penis, including the entire shaft, back to the edge of the scrotum. A biopsy was done, followed by amputation of the entire penis. The urethra was brought out on the posterior surface of the scrotum. The patient was discharged on April 24, 1948. On December 12 he came back with a recurrence of the growth. By this time the tumor had spread to the skin of the scrotum and laterally to the skin of the perineum and adjacent thigh. The inguinal glands were enlarged on both sides. Another resection of the inguinal glands was carried out. The entire mass, including the scrotum and some of the skin of the perineum and testicles, was removed in one block. The urethra was brought out just anterior to the rectum and perineum. The patient returned on February 9, 1949, presenting an ulceration of the inguinal glands on both sides. These glands were resected, but showed chronic adenitis and cellulitis rather than carcinoma. The disease was far advanced, and arrest was not anticipated. On January 4, 1960, however, the patient was found to be well, with no evidence of recurrence. This case represents control of far advanced cancer for 12 years.

Case 4

A 67 year old white man, first noticed a growth on the glans penis in July, 1951. He came in for treatment in December, 1951. Examination disclosed a hard, disfiguring growth which had displaced and distorted the glans penis. The inguinal glands were enlarged. A radical amputation was carried out, removing the entire shaft of the penis and bringing out the corpus spongiosum with the urethra on the perineum at the most dependent portion of the scrotum. The inguinal glands were resected. There was some sloughing at the edges of the skin flaps, but this healed by granulation. The diagnosis was grade T squamous-cell carcinoma. The patient received a therapeutic dose of x-ray to the inguinal areas. He has remained well and has good urinary function at the present time. There is no evidence of recurrence. This case represents an arrest, and perhaps cure, of nine years.

Case 5

A white man, aged 65, was admitted in August, 1951 with a hard indurated growth on the glans penis near the corona, and with enlarged inguinal glands bilaterally, of one year's duration. A histologic examination of tissue showed squamous-cell carcinoma. The penis was amputated at the level of the symphysis pubis. The corpora cavernosa were closed and the skin was closed over the corpora. The corpus spongiosum was first sutured to the end of the penis, but was amputated a little too short and retracted. This resulted in fibrous constriction of the meatus. About six weeks later the urethra was transplanted to the perineum behind the scrotum. The patient had no further urinary difficulty. Both the inguinal and femoral glands were resected on

both sides. The patient has remained well until the present time, representing control of this carcinoma for nine years.

Case 6

A 53 year old white man had an ulceration under the foreskin involving about 1 cm. of the corona of the glans penis. Histologic examination after biopsy showed squamous-cell carcinoma, grade II. The inguinal glands were not enlarged. The foreskin together with the lesion was resected locally, leaving a margin of about 2 cm. around the ulcer. The skin of the shaft was used to cover the defect in the glans. The inguinal glands received x-ray therapy. Surgery and irradiation effected a cure or control for six years. The organ functions well.

Case 7

A 52 year old Negro man was admitted to the hospital on August 9, 1952, because of a growth on the penis of nine months' duration. Following biopsy, a partial resection of the penis and inguinal glands was performed, retaining about half of the shaft of the penis. The inguinal glands were reported to show chronic inflammation rather than carcinoma. This patient died about one year later with bronchopneumonia and septicemia following peritonsillar abscess. There was no external evidence of recurring carcinoma.

Case 8

A Negro man, aged 59, first noticed a growth on the end of the penis in January, 1953. The lesion was locally excised in March, 1953, but continued to ulcerate. In one year the distal half of the penis was destroyed. The inguinal glands were hard and indurated. In January, 1954, a complete amputation of the penis and resection of the inguinal glands were carried out. The urethra was transplanted to the perineum, and the entire shaft of the penis was removed. The diagnosis was grade I epidermoid carcinoma. The patient is well and working today, with no signs of recurrence. This case has been controlled for six years.

Case 9

The patient was a white man, aged 68 years and very obese. He was admitted in November, 1954, with a tumor of the penis under a tight foreskin. According to the patient, the growth had been present for about three years. There was extensive ulceration and inflammation involving the foreskin. The inguinal glands were enlarged bilaterally. The shaft of the penis was not involved, and the distal one-third of the glans penis was resected. The urethra was brought out on the skin of the scrotum. The inguinal and femoral glands on both sides were resected. The pathologist reported squamous-cell carcinoma of the penis and inguinal glands.

The patient was readmitted in September, 1956, after having been well for approximately two years. The penis and inguinal glands appeared normal, but there was a lesion on the inner side of the left thigh which proved to be malignant ulceration. This lesion was excised extensively and a split-thickness skin graft applied. Following this procedure the patient remained well until his death from a coronary occlusion in June, 1960. His case represents a far advanced carcinoma of the penis which remained arrested and possibly cured for a period of six years.

Case 10

A 22 year old white married man was admitted to the hospital in July, 1959. For one month he had noted a sore nodule under a tight foreskin. He was unable to retract the foreskin and maintain hygiene. No enlargement of the inguinal glands was noted. Histologic examination disclosed grade II squamous-cell carcinoma. The patient reluctantly agreed to an operation and requested that we save as much of the penis as possible. The lesion was resected 2 cm. proximal to the corona. The corpora were closed with fine catgut. The utrethra extended 0.5 cm. beyond the shaft, and a graft was used to cover the end of the shaft. The inguinal glands were resected, but were found to be free of tumor. The patient's recovery was uneventful. A follow-up examination in September, 1960, 18 months after operation, showed no recurrence of the growth, and urinary function was good. The patient states that sexual function is quite satisfactory.

Summary

Cancer of the penis is preventable, and should received more attention in preventive medical programs. The lesion is nearly always a squamous-cell tumor which begins around the corona. It tends to metastasize slowly to the inguinal and femoral glands, but very rarely by the blood stream. It is highly amenable to surgical treatment and to some degree to radiation.

Ten illustrative cases are reported, 5 in Negro and five in white patients. These cases are reportedly consecutively as they were encountered in the course of a general surgical practice during the years 1944 to 1960.

Neck Injuries in Children

H. Frank Forsyth, M.D.
Winston-Salem

The remarkable thing about neck injuries in children is their relative infrequence. Compared to the amount of violence to which it is subjected, this portion of the anatomy of the infant or growing child is rarely the site of significant damage. Consider the falls, the gymnastics, the wrestling, the rough games and contact sports, as well as automobile and other vehicle accidents in which most children are involved as they grow up, and it becomes a miracle that more of them are not paralyzed by the time they reach adulthood. One would have to conclude that the limber cervical spine of the child is so well constructed and reinforced with ligaments that it is able to resist most of this trauma; or else that our roentgenographic and other diagnostic measures are not adequate to show us the effects of the trauma in spines that are composed, to a fairly large degree, of cartilage. Interpretation of roentgenograms of the cervical spine is difficult enough in the adult because of superimposed bony structures, but in the child it is still more confusing. We must be aware of the presence of epiphyseal lines, and the unossified portions of the skeleton, and also become more familiar with the normal appearance of the spine at the different age levels.

Clinical Material

During the past 12 years we have treated 175 patients with serious injury of the cervical spine at the North Carolina Baptist Hospital. Only 10 of the patients in this group were under 15 years of age, thus placing them within the pediatric age limit. These 10 patients varied in age from 8 months to 12 years, with a mean age of 6 years. The sex distribution was equal. It is worth noting that the incidence rises sharply in the 15 to 25 year group, owing to the large number of severe automobile accidents and the preponderance of diving injuries within this age range.

In the childhood group (table 1) we found that 4 out of 10 patients had atlanto-axial dislocations due to tearing of the transverse ligament of the atlas. In 7 of the 10 patients in this group the injury occurred in the upper 3 cervical vertebrae. The remaining 3 patients suffered injuries of the lower cervical region: A bullet wound of the sixth cervical vertebra caused the injury in one patient, who was paralyzed but recovered. Posterior dislocation of the seventh cervical vertebra occurred in the other 2 children who were struck by automobiles. Both victims were tetraplegic, and the complications resulted in death in one case, and permanent paralysis in the other.

Not included in this group of serious injuries, but still of considerable interest under the general topic of neck injuries, is a group of 14 patients who had simple rotary subluxation of the cervical spine (table 2). There was an even distribution of ages in this group from 2 years up to 16 years, but 10 of these children were boys while only 4 were girls. No cases of this entity were seen beyond the age of 16 years, although the condition has been known to occur in young adults. The clinical picture is a familiar one which is usually caused by relatively minor trauma such as a sudden twisting of the neck or a fall on the side of the head. In most instances it seems to occur during an unguarded moment when the muscles which would ordinarily prevent it are relaxed. In 3 of these cases the patients brought on their own disability by a sudden jerk of the head during a fit of anger. Much to their surprise, there was a momentary sharp pain, and the head would not return to its starting point.

The typical deformity is a torticollis

Read before the Section on Orthopaedics and Traumatology, Medical Society of the State of North Carolina, Raleigh, May 11, 1960.

From the Section of Orthopaedic Surgery, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

Table 1
Serious Cervical Spine Injuries In Children

Cases	Date	Sex	Age	Lesion	Cause	Treatment	Result
1.	1959	M	7	Partial atlanto-axial dislocation; tear of transverse ligament of atlas	Struck by auto	Bedrest, cervical collar 3 months	Normal neck
2.	3/10/59	F	5	Unilateral atlanto-axial dislocation; partial tear transverse ligament of atlas	Fell on head from chair	Traction Minerva cast 3 months	Full recovery
3.	9/29/57	M	4	Atlanto-axial dislocation; partial tear transverse ligament of atlas; cerebral contusion	Struck by auto	Traction; spinal fusion C1-2	Stable neck; good result
4.	1957	M	12	Severe hyperextension with posterior dislocation C7 on T1; transection of cord	Struck by truck while riding bicycle	Traction; laminectomy, etc.	Tetraplegia; permanent confinement to wheelchair
5.	8/27/56	M	6	Anterior subluxation C2 on C3	Diving over arm of sofa. Struck on top of head	Traction cervical collar	Full recovery
6.	3/16/56	F	11	Partial atlanto-axial dislocation; partial tear transverse ligament of atlas; head injury	Struck by auto	Bedrest; traction cervical collar	Good function; slight residual displacement
7.	12/5/51	F	6	Subluxation C2 on C3	Fell on head from porch	Minerva cast 2 months	Complete recovery
8.	7/7/51	F	18 mon.	Slight anterior fracture dislocation C3-C4	Fell down steps on head	Bedrest; cervical collar	Normal function
9.	7/7/51	F	8 mon.	Head injury; posterior dislocation C7 on T1; paraplegia	Auto accident	Bed rest; traction	Death in 5 days
10.	7/14/49	M	9	Fracture body of C6; Brown-Sequard syndrome	Gunshot wound	Skull traction Minerva cast	Complete neurologic recovery

Table 2

Rotary Subluxation of Cervical Spine

(Clinical Cases)

Cases	Sex	Age	Cause	Treatment
1.	Male	7	Sudden twist	Traction for 2 days
2.	Male	12	Sudden twist	Manipulation
3.	Male	9	Fell turning somersault	Manipulation
4.	Female	4	Sudden twist	Head halter traction 2 days and then maniplation under anesthesia; adhesive strapping 2 days
5.	Female	2	Fell from bed	Manipulation
6.	Male	16	Twisted head while wrestling.	Manipulation
7.	Male	3	Fell in bathtub	Traction 3 days (Manipulation failed)
8.	Male	8	Fell in swimming pool	Traction 2 days (Manipulation failed)
9.	Male	14	Fell while tumbling	Traction 3 days
10.	Male	8	Fell in swimming pool	Traction 1 day
11.	Male	16	Fell while tumbling	Manipulation
12.	Female	15	Twisted head looking in mirror	Traction 2 days
13.	Male	6	Slapped in face and jerked head back	Manipulation and cervical collar 2 days
14.	Female	5	Fell on head	Traction 2 days

with the head rotated to one side about 20 or 30 degrees. The chin is tilted upward toward that side, but the head is inclined toward the opposite side. The pain, tenderness, and muscle spasm are in the posterior neck muscles on the side toward which the face is turned. The sternocleidomastoid muscle on the opposite side is relaxed, in contrast to the usual findings in acute cervical myositis or the spastic or congenital types of torticollis. There is a limited degree of mobility, but the head always returns to the same inclined position. There is no neurologic deficit, and I am not aware of any danger that one will develop. It is characteristic of this lesion that it is easily corrected by manipulation or the application of halter traction to the head for a day or two. I have not found it necessary to apply any type of holding device after reduction, and there has been no instance of recurrence. Any residual muscle soreness has cleared up within 24 to 48 hours.

One of our patients had the "non-traumatic" or "hyperemic atlanto-axial dislocation" with relaxation or dissolution of the transverse ligament of the atlas thought to follow tonsillitis or pharyngitis. She was a 6 year old girl who fell in the yard from an insignificant slip a week after having an upper respiratory infection. The next morning she had a wry neck associated with pain in the upper cervical spine. Roentgenograms showed a mild rotary anterior dislocation of the atlas on the axis. Reduction was accomplished with ease by

skull traction and maintained for two months by means of a Minerva Jacket. After that her neck had normal function, and appeared normal by roentgenogram, including lateral views in flexion and extension.

One sees numerous instances of an acute type of torticollis, which is also frequently associated with an upper respiratory or other infection about the head. It appears to be an acute myositis, and is characterized by spasm of the sternocleidomastoid muscle and tender, deep cervical adenitis. There is no pain, spasm, or tenderness posteriorly over the spine or erector spinae muscles, and it is not actually a condition related to the spine itself.

Other conditions of importance in the differential diagnosis of cervical spine injuries are some of the congenital anomalies that may involve this area. These would include congenital absence of the odontoid; failure of fusion of the dens and the body of the axis; occipitalization of the atlas, platybasia, basilar invagination or other abnormalities of the foramen magnum; and the various types and degrees of Klippel-Feil syndrome. In the presence of some of these lesions which tend to make the neck weaker structurally, such as absence or failure of fusion of the odontoid, or to make the spinal canal smaller such as basilar invagination and other anomalies of the foramen magnum, a relatively minor injury of the neck could result in serious compression of the spinal cord. It would take a high index of suspicion for one to be aware of such a possibility and make the diagnosis in the face of a history of minimal trauma. On the other hand, if one were to see roentgen evidence of Klippel-Feil syndrome in films of a cervical spine made sometime after a minor injury, he might think that the trauma had been of much greater magnitude than it actually was. Such an error in understanding might lead to overtreatment as far as a patient was concerned, or to overpayment in case an insurance settlement was due.

Summary

A brief review of the cervical spine injuries in children treated at the North Carolina Baptist Hospital during the past 12 years indicates that serious damage occurs infrequently in children as compared with the same injuries in adults. It also points out that the upper three cervical vertebrae were much more frequently involved than the lower ones, and in general there was a greater tendency to dislocation than to fracture.

Congenital anomalies were mentioned as a possible complicating factor in injury as well as an important factor to be remembered in roentgen diagnosis and treatment.

Report from The Duke University Poison Control Center

J. M. ARENA, *Director*

LEAD POISONING

PART III

Treatment

If the poison has been recently ingested, wash the stomach with warm water or a 1 per cent sodium sulfate solution. A saline cathartic, such as 30 Gm. (1 ounce) of magnesium sulfate, should be given to flush the lead from the intestinal tract and reduce absorption. Egg white, milk, or other demulcents are useful for soothing the irritated gastric mucosa.

To control colic, calcium gluconate 1 Gm. (15 grains) is given intravenously and repeated as necessary to obtain relief. Morphine sulfate, 15 to 39 mg. (1/4 to 1/2 grain), should be given hypodermically as necessary for control of severe pain. Maximum dosage for children is 1 mg. per 10 pounds of body weight.

The most effective method of removing lead is the intravenous administration of solution calcium disodium versenate, which is superior to BAL as a de-leading agent in that it has a higher therapeutic to toxic ratio and a high coefficient of chelation for lead. This drug should be given by in-

travenous infusion only, and the concentration should not exceed 3 per cent. One ampule, 5 ml. of a 20 per cent solution, must be diluted to at least 33 ml. The following procedure is recommended:

Dilute the 5 ml. (1 Gm.) from an ampule with 250 to 500 ml. of solution isotonic sodium chloride, U.S.P., or sterile solution of 5 per cent dextrose suitable for intravenous injection. Administer this diluted solution by intravenous drip over a period of one hour. This dose may be administered twice daily for periods up to five days. If additional treatment is indicated, a two-day rest is recommended, to be followed by another five-day course.

The dose for children should not exceed 0.5 Gm. per 30 pounds of body weight, administered as above. Intermittent intramuscular injections of a 20 per cent solution containing 0.5 per cent procaine in a total daily dosage range of 50-75 mg. per body weight for five to seven days is also effective.

Versonate makes available for the first time reasonably safe, effective therapy in heavy metal poisoning without organ injury during excretion.

Solution calcium disodium versenate is the calcium chelate of ethylenediaminetetracetic acid (EDTA). (In the body calcium is displayed by lead, forming the lead chelate—nonionized, nontoxic, water-soluble, nonmetabolized, and excreted intact.) This compound cannot produce exacerbation of symptoms during period of therapy. It is potentially nephrotoxic and overdosage or prolonged treatment can cause nephrosis, which usually clears promptly after therapy is discontinued.

Oral administration of EDT is not as satisfactory as parenteral administration, and may even be harmful. If excessive quantities of lead are present in the gastrointestinal tract, the resultant chelated lead is well absorbed, and while most of it may be excreted in the urine, there is always the possibility that total stores of body lead may be increased. The prophylactic oral use of this drug in lead workers should never replace proven preventive and protective measures.

In lead encephalopathy with status epilepticus or coma, restricted parenteral fluids and parenteral EDTA are mainstays of therapy, with parenteral anticonvulsants and intensive supporting care including drugs (urea, etc.) for diminishing the increased intracranial pressure. Extensive craniectomy with opening of the dura appears to have saved lives and to have prevented, in some instances, irreversible brain damage.

Lead Arsenate and Arsenite

These compounds are white, heavy powders which are extensively used as insecticides. Intoxication may arise from inhalation of the powder during spraying operations and from the ingestion of contaminated drinking water or food. The clinical picture of lead arsenate poisoning more closely resembles that of lead than of arsenic poisoning, although certain symptoms occasionally are similar to those produced by arsenic. Nevertheless, toxicity is mainly due to the lead component and treatment is essentially the same as that of lead poisoning. BAL, however, might be more useful than EDTA, since both lead and arsenic may be responsible for the presenting symptoms.

Lead, Tetraethyl

This highly toxic compound is an oily liquid which is added in small amounts (1:1000) to gasoline to lessen "knock" by preventing premature combustion. Poisoning arises directly from contact with tetraethyl lead itself, which is absorbed both from the intact skin and lungs. The toxic effect is due to the triethyl lead formed during the breakdown of the tetraethyl compound, which causes inflammatory and degenerative lesions in the brain and other tissues. Acute central nervous system excitement results, with delirium and mania. The main risk of this type of poisoning exists in industrial workers, but present precautions and prophylactic measures are adequate in eliminating these dangers.

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MARCH, 1961

EXECUTIVE COUNCIL MEETING

The midwinter meeting of the Executive Council of the State Medical Society was held in Pinehurst on February 12—the day after the Conference of County Medical Society Officers and Committeemen. Both meetings had been postponed for two weeks on the advice of the Highway Commission because weather conditions made driving hazardous. One could not have asked for better weather at this meeting, however, and the meeting was well attended.

Since a called meeting of the House of Delegates will be held in Durham on February 26, to ratify the most important actions of the Council, this account of the highlights of the Council Meeting is in the nature of a preliminary report.

Most of the morning session was devoted to the stand the Medical Society should take in the Medical Assistance for the Aged Program proposed by the Kerr-Mills Act. After much discussion pro and con, a motion was made that the Society would not ask for vendor payments at this time. It was brought out in the discussion that not more than 65,000 people past 65 were apt to apply for medical assistance under the Act, and of these not more than 10,000 or 15,000 per year would apply. Mr. J. W. Foristel of the A.M.A. Washington Office said that it would be a good policy from the public relations viewpoint not to ask for vendor payments for the present. He also said that North Carolina was one of the four key states to encourage participation in the Kerr-Mills Act instead of the Social Security approach—and that unless at least 24 states adopted the Kerr-Mills Programs by the end of this Congress we would be "in bad shape."

A motion to rescind the November meeting action of the Executive Council and decline to ask for vendor payments was passed by a vote of 13 to 4.

Dr. Roscoe McMillan, chairman of the Committee on Constitution and By-Laws, called attention to Article IV, Section 6, of the Constitution, which states: "Life Members shall consist of those physicians who have been members of the Society consecutively for 20 years and who have attained the age of 70 years. They shall be exempt from all dues and assessments and shall be entitled to all the privileges enjoyed by active members in good standing except the privilege of holding office and receiving the JOURNAL." He asked that the Council recommend that the phrase, "except the privilege of holding office and receiving the JOURNAL," be deleted. This motion was passed unanimously.

Dr. McMillan also paid a tribute to the Auxiliary, and asked that if they requested it, a sum not to exceed $600 per year should be granted the Auxiliary for employing part-time secretarial help. This was unanimously approved.

Dr. Everett Bugg's *ad hoc* Committee on Relative Value Scale Study submitted copies of the report prepared by his com-

mittee. A motion was passed that the Relative Value Scale Report be approved in principle and that the committee be continued, with authority to change the Relative Value Scale after negotiating with groups involved. The comment was made that a foreword of explanation was needed.

Dr. Wayne Benton, chairman of the Committee on Finance, reported that the Society was "financially well off" and that our investments were returning a satisfactory yield. He also said that by 1963 Greensboro would have ample hotel and coliseum facilities to entertain the Society, and requested that the Nominating Committee bear Greensboro in mind as a possible meeting place for 1963.

A gratifying announcement was that our Society's membership now entitles it to a fourth delegate to the A.M.A. Dr. Amos Johnson was unanimously elected as delegate and Dr. George Paschal as alternate to serve through next December.

Before adjourning, the Council voted to authorize a called meeting of the House of Delegates to be held in Durham on February 26 at the Jack Tar Hotel beginning at 10:00 A.M. This is an important meeting of the House and it is hoped that there will be full attendance.

* * *

THE WHITE HOUSE CONFERENCE ON AGING

Dr. Amos Johnson's "President's Message" in last month's issue gave an excellent account of the White House Conference on Aging. The Conference was important enough, however, for some further editorial comment.

When the newspapers announced during the Conference that seven work-groups had voted in favor of the Social Security approach to old-age assistance, most readers assumed that the overwhelming majority of the delegates favored that method over the present Kerr-Mills plan. The statement was misleading—whether intentionally or not. There were 2,800 delegates, divided into 10 groups, 20 sections, and 140 work-groups. Section 2 of group 1, dealing with income maintenance, was broken up into seven workgroups with a total of 285 members. This section was the only one allowed to vote on the method of financing medical care for the aged. An astute observer of the political scene, Dr. Marjorie Shearon, in the January 19 issue of her *Challenge to Socialism,* tells how cleverly long-time advocates of federally controlled medicine had planned the conference. The important section 2 with its seven workgroups was dominated by hand-picked advocates of Social Security. Even so, the combined vote of the seven sections was only 96 to 77 in favor of the Forand type of legislation—a majority of only 19.

In contrast, the section on health maintenance voted 165 to 122 in favor of an amendment stating that "Existing federal-state matching programs will provide effective, economical, dignified medical care for our elderly citizens who need help. The implementation of such programs should result in the high quality of medical care desired. Compulsory health care inevitably results in poor quality health care." For some reason the newspapers gave scant or no mention to this vote—although it should more than counterbalance the vote of section 2.

Dr. Shearon noted that the workgroup discussing the financing of medical care costs "had no representation from the medical profession which would have to furnish the medical care" . . . and the commercial insurance companies, Blue Cross-Blue Shield, and other interested groups were not adequately represented. Instead were seen "Representatives of organized labor, social workers, Federal employees from the H.E.W. Department, two commercial insurance officials, one representative of Blue Cross, the President of the American Nurses' Association, which is on record as favoring compulsory health insurance, a Public Health physician, and a physician from a Welfare Department." Dr. Shearon replied to the charge made by Professor Wilbur J. Cohen on January 5 that the White House Conference had been stacked by A.M.A. by saying, "We do agree that at least one section was stacked. Not by the American Medical Association, but

by the proponents of national health insurance who are seeking to put over a national scheme of Federal medicine for the aged, using the social insurance mechanism."

Two excerpts from the A.M.A.'s *Medical Legislative Digest* for January 24 are pertinent: "The Communist Party of Illinois has recently distributed a brochure entitled 'The Forand Bill Can Be Won Now!' This brochure, under the subtitle 'The Forand Bill is the Minimum, indicates the future aims of the Illinois Communists: 'The virtue of the Forand Bill is that it is a Federal, rather than a State-aid measure, and is built into the Social Security system. With all its present limitations the Forand Bill opens the door toward complete hospital, medical and surgical services for the aged, and ultimately for the whole population. It can be enacted at once by this session of Congress.'

"The December 1, 1960 supplement to 'New America', the official publication of the Socialist Party, is devoted to the support of the Forand bill and its extension to every one in the United States. This publication says in part, 'Once the Forand bill is passed this nation will be provided with a mechanism for socialized medicine, capable of indefinite expansion in every direction until it includes the entire population. And it is already evident that there will be massive pressures in favor of such expansion.' "

One encouraging development of the Conference was that almost every section went on record as opposing compulsory retirement at a fixed age.

A final thought is that our representatives had just cause to feel proud of North Carolina's record in caring for its older citizens. Our state is well in the vanguard in providing adequate care for the aged.

It remains to be seen what action Congress will take in its present session. Certainly the deliberations of the White House Conference did not give a mandate for the Forand type of providing medical assistance through Social Security.

* * *

WESTBROOK'S GOLDEN ANNIVERSARY

The two news items in this month's "Bulletin Board" about Westbrook Sanatorium should be of particular interest to North Carolina doctors. Westbrook was founded by two North Carolina physicians—Dr. James K. Hall, of Statesville, and Dr. Paul B. Anderson, of Wilson. Dr. Hall's sister is the wife of North Carolina's Senator Sam Ervin. Dr. Hall died in 1948, but a son bearing his name is following in his distinguished father's footsteps.

Another reason why North Carolina doctors may feel a personal interest in Westbrook is that Dr. Saunders is also a North Carolinian. He was superintendent at the State Hospital in Morganton until he fell a victim to political intrigue. He has found his connection with Westbrook far more pleasant, as well as more profitable.

Congratulations and best wishes to Westbrook Sanatorium and its medical staff.

* * *

TRANSITION TROUBLE

The late appearance of the January issue of the *North Carolina Medical Journal* calls for some explanation. The editorial and scientific material was in the hands of the publishers in ample time to meet the requirements for earlier publication. In the transition from one publisher to another, however, there was considerable delay in receiving advertising material—so that the actual printing of the January issue was not begun until well after the first of the month.

Both the publisher and the editor concur in regretting the unfortunate start of Volume 2, but—barring unforeseen delays—hope and expect to make amends by having successive journals in the mail by the middle of each month.

At present, with the high cost of medical care a major social problem, it is imperative to avoid performing unnecessary and costly tests.—Levine, S. A.: Worry—Where Will It Get You? The Pharos 23: 215 (Oct.) 1960.

President's Message

Let's Win This Battle

Presently the people of America are more aware of and conversant with information and facts related to medical care than ever before. The forum of public opinion is in the process of communicating its decision to the leglislative chambers of our Congress. It is fitting and proper and imperative that the full weight of the potential influence of each individual physician in this country reflect itself in the decision of this forum of public opinion in order that available high quality medical care may remain the heritage of all Americans.

The medical profession is more concerned than any one group with the health of the aged in particular and of all people in general—and can prove it. There are more aged people alive now because of increasingly good medical care during the past half century. Yet, it is apparent the medical profession gets little credit for a job well done. Why should social science educators, social workers, labor leaders, or politicians be recognized as the people most concerned with the health of the aged?

What are the motives of these people who have suddenly interjected themselves into the picture of medical care? Are they really concerned with the availability, quality, and cost of medical care? Do they really believe that "Uncle John" doesn't get to the doctor or hospital because he can't *afford* it? Or, are they concerned with utilizing this area of national sentiment as an approach to *altering the basic philosophy* of American Government?

These are the people who put Norman Thomas and the Socialist Party out of business in the United States. These are those who since the early thirties have, piecemeal, sold packages and packets of socialism to the people of this country to its ultimate socialization beyond the fondest dreams of ex-presidential Socialist candidate Thomas. These people would next have medical care for all a service and function of the Federal Government in their unswerving drive towards a total welfare state.

But all is not well with Medicine. Throughout the past three decades medical leadership in America has evidenced but little insight and astuteness in formulating policies. Medicine has participated in and, in fact, produced a scientific revolution within its own area which is equivalent to and partly productive of similar upheavals in the social, political, and economic aspects of American life. While fostering immense medical progress, as a profession, we have concurrently failed to participate in revolutionary social, political, and economic progress which is equally important in the total picture of the "American Way of Life." Medicine must re-evaluate its purposes and policies. We must supply America the products of American medical progress, which our people rightly demand, within the framework of long range policy and planning which is ultimately good for the American people. This should not be and will not be to the detriment of American medicine. By assuming the lead in this movement, Medicine can remain free; continued resistance insures captivation.

While proper and astute long range policy and planning is imperative to insure the survival of free organized medicine (A.M.A.), there is also need for astute impulsive leadership. Recently, at the White House Conference on Aging the American Medical Association was beautifully finessed. Much "face" was lost for American Medicine. More recently, Medicine has been maneuvered into participation in public debates, panels, and other programs on television, competing with experts, under the circumstance of an "atmosphere" of public opinion so hostile to medicine that for us to win was impossible. The timing was poor. So let's say, *touché*, and alter our approach to the problem at hand.

While the leadership and identity of the A.M.A. may necessarily be slow to change, state medical societies are more flexible and closer to the people they serve. A constructive effort here could generate much un-

derstanding and support for the medical profession and determine how best it can serve under free enterprise, rather than permit the Federal Government to interpose itself to the detriment of the quality, cost, and availability of medical care. Action from the community level upward in any national organization usually gets best results.

In due process then we should next evaluate our position as organized physicians in the framework of today's altered "American Way of Life." The profession of medicine, as indeed are other professions and social institutions, is the product of past eras. The interaction of certain prevalent forces—that is, communications, social, economic, political, etc.—each upon the other determines the product. The progress of time brings into play new forces and circumstances, yet the profession or institution resists change and stubbornly lives on as in the past. "It has a life of its own, apart from the life of society—and things that had once been recognized as the product of their time and place are spoken of as if by some decree they had been given eternal validity."* Is Medicine guilty, as charged, of an unawareness of certain recently recognized social phenomena which should alter, to some degree, the structure of the present "ground rules" for the provision of and payment for medical care? Would we best, as an organized profession, have a soul-searching evaluation of Medicine's position in present day society, and act accordingly? These are questions relating to problems of utmost importance to us as physicians. The summation of our individual informed opinions must answer these queries. Medicine must take the initiative and supply the leadership. Time is of the essence.

Once we are evaluated in our proper perspective and proper ideology is established, the battle to remain a free profession must be won from the community level upward. Just as government derives its authority to rule by consent of the people, either expressed positively or by default, so ultimately will state medicine stand or fall by the will of the people, expressed either positively or by default. Although we know that the propaganda calculated to perpetrate this monstrosity upon the American people is fostered by socialists in high places and is disseminated and supported by "party-line politicians" from the top down, we can not win this battle using similar strategy. Labor, social scientists, social workers, and politicians welcome and encourage top level debates and panels with Medicine, and in the present atmosphere of public opinion we lose every time. We must complete the cycle by impressing on every individual American, who is each ultimately the patient of some physician, the truth and importance of the principles at stake. This opinion then must arrive, as a positive statement, either individually or collectively expressed, to our legislators in Washington.

This essential accomplishment we, as physicians, can not buy. In this endeavor we will either succeed or fail by the degree to which we are willing to give of ourselves. Is the prospect of Medicine's survival as a free enterprise profession within the motivation of that which is good for the American people worth a few minutes of your time an deffort each day?

Our obvious need for better understanding is for every practicing physician to devote some portion of his time to act as a spokesman for what is best in Medicine. By wise participation in community or state activities you can demonstrate by *deeds and words* what modern Medicine under free enterprise can accomplish for all. In other words, if each doctor will contribute his own good character and talents to help create a better understanding of American Medicine, *what changes* could be wrought in the problem facing this same American Medicine. THIS INVOLVES YOU.

Amos N. Johnson, M.D.
President

*August Heckscher: Medicine and Society.

Correspondence

North Carolina Biennial Registration Act

To the Editor:

In July of 1960 you published a letter I wrote voicing my dissatisfaction with certain aspects of the North Carolina Biennual Registration Act.

Recently I have surveyed several southern states to ascertain their standing on a medical registration fee. Pehaps, the members of the State Society will be interested in this information. All of the states surveyed had registration in effect except one, South Carolina, and it expects biennual registration to begin in the year of 1961. The State of Maryland's registration fee is one dollar per year, but no charge for registration if not in practice; Tennessee's annual registration fee is five dollars; Alabama originally charged ten dollars but has recently reduced their registration fee to five dollars; Florida has an annual registration fee of one dollar; and Georgia charges a fee of three dollars annually.

To my knowledge the only general information given to the members of the North Carolina Medical Society relative to the basis for the Biennual Registration Act appeared in the guest editorial in the North Carolina Medical Journal, December 1957. It said: "If the Board of Medical Examiners had not had definite plans for such an enactment, the Commission for Reorganization of the State Government would have forced us to come under such a regulation. A bill was enacted in the 1957 Legislature requiring the secretary of all boards to report to the Secretary of State the name and address of each licentiate of the respective board. This could not have been done without registration." It was further stated in the editorial that a registration act was the only way that the Board of Medical Examiners could give the Secretary of State such information and thus necessitating this law. Still, however, we were not given the reasonableness for such a law.

The questioning of a five dollar registration fee is not of niggardliness but rather to determine proper economy. It would appear to me that the fees ($25,000.00 plus) collected are more than are necessary for this function. In a statement in the August 1960 North Carolina Medical Journal it is stated: "Registration is not put into effect as a revenue measure—." If this be true, then it would appear that two periods of registration would be ample to allow the Board of Medical Examiners to re-assess the situation and thereby determine whether the fee is proper as it stands in adequate time to report it to the Medical Society this year.

I think it is the responsibility of every member of the State Society to voice his opinion upon the pertinent matters that arise within it, I hope other members will do so.

J. R. Gamble, Jr., M.D.
Lincolnton

Medical Care for the Aged

To the Editor:

I listened to the telecast on CBS Thursday night (Feb. 2) on care for the aged. I wonder if you saw it. It certainly put the medical profession and the Blue Cross Commission in a sad light.

I was astounded that such a slanted, biased program would be presented under the heading of public information. I am disturbed, too, about the lack of understanding of the real problems among many of our doctors.

I think that medicine is facing the gravest crisis in its whole history. In my mind, there is a question as to whether even our voluntary health insurance agencies will survive the next few years of the Kennedy administration.

We all know, of course, that Mr. Reuther has no sentimental ideas about the aged. His program calls for ultimate and total state medicine under the Social Security Administration.

If you think any of this could be used in the Medical Journal, you are welcome to use it. I think it is high time the other side was being presented.

V. K. Hart, M. D.
Charlotte

Bulletin Board

Preliminary Program of the
ONE HUNDRED SEVENTH
ANNUAL SESSION
The Medical Society of the
State of North Carolina
May 6, 7, 8, 9, 10, 1961

ASHEVILLE, NORTH CAROLINA
Headquarters
Battery Park and George Vanderbilt Hotels

SATURDAY, MAY 6, 1961

11:00 A.M.—Executive Council Meeting
(Business of this Session may be continued Sunday morning at 10 o'clock)
(Battery Park—Grove Room)

SUNDAY, MAY 7, 1961

10:00 A.M.—General Registration opens, Booth
(Lower Hall—Asheville City Auditorium)
(Society members, Delegates, Officials, Guests, Technical and Scientific Exhibitors will register in this Area)
(Auxiliary Members to register at The Manor)

1:00 P.M.—Scientific and Technical Exhibits open

2:00 P.M.—First Meeting of the Annual Meeting THE HOUSE OF DELEGATES of the Medical Society—Donald B. Koonce, M.D., presiding
(Agenda will be available)
(Assembly Hall—Asheville City Auditorium)
Invocation: (local minister to be announced)

6:00 P.M.—House of Delegates recesses to Monday, May 8, 2:00 P.M.

8:00 P.M.—Memorial Service
Charles H. Pugh, M.D., Chairman, presiding
Choral Presentation: (to be anounced)
Address: (to be announced)
(Battery Park—Gold Room)

MONDAY, MAY 8, 1961

8:45 A.M.—Scientific and Technical Exhibits Open
(Asheville City Auditorium—Exhibit Hall)

9:00 A.M.—General Registration opens, Booth
(Lower Hall—Asheville City Auditorium)
(Society Members, Delegates, Officials, Guests, Technical and Scientific Exhibitors will register in this area.)
(Auxiliary Members to register at The Manor)

9:00 A.M.—NORTH CAROLINA BOARD OF MEDICAL EXAMINERS
(Meet for Business and Hearings)
(Battery Park—Grove Room)

FIRST GENERAL SESSION
Monday, May 8, 1961
Asheville City Auditorium—Assembly Hall)

9:00 A.M.—Convene Session
Amos N. Johnson, M.D., President

9:10 A.M.—PYELONEPHRITIS
William H. Boyce, M.D., Professor of Urology, Bowman Gray School of Medicine, Winston-Salem

9:30 A.M.—HOSPITAL AND SURGICAL INFECTION
Howard W. Steel, M.D., Department of Orthopaedic Surgery, Temple University Hospital, Philadelphia, Pa.

10:00 A.M.—The Annual Address of the President
Amos. N. Johnson, M.D., President
The Medical Society of the State of North Carolina, Garland

10:30 A.M.—Break

11:00 A.M.—TRAUMA AND THE CONTAMINATED WOUND
Chalmers R. Carr, M.D., Charlotte

11:20 A.M.—VIRUSES AND UPPER RESPIRATORY INFECTIONS
Floyd W. Denny, M.D., Professor of Pediatrics University of North Carolina, School of Medicine Chapel Hill

11:40 A.M.—CURRENT CHEMOTHERAPY — Panel Discussion
William W. Shingleton, M.D., Moderator
Professor of Surgery, Duke University Medical Center, Durham
PANEL: Wm. H. Boyce, M. D.
Howard W. Steel, M.D.
Chalmers R. Carr, M.D.
Floyd W. Denny, M.D.

1:00 P.M.—Announcements
ADJOURNMENT

ALUMNI LUNCHEONS

Monday, May 8, 1961, 1:00 P.M.
Duke University Medical School Alumni Luncheon
Talmadge L. Peele, M.D., Secretary, Durham
(George Vanderbilt—West Ballroom)
The Medical Alumni Association of the University of North Carolina Luncheon
(Battery Park—Gold Room)

2:00 P.M.—HOUSE OF DELEGATES of the Medical Society reconvenes
(George Vanderbilt—East Ballroom)

2:30 P.M.—POSTGRADUATE AND AUDIO-VISUAL PROGRAM
(Asheville City Auditorium — Assembly Hall)
(to be listed in Official Program)

2:30 P.M.—Scientific Section Meetings:
Section on Surgery
(Battery Park—Gold Room)
Section on Obstetrics and Gynecology
(Battery Park — Rhododendron Room)
Section on Radiology
(George Vanderbilt—West Ballroom)
Section on Pathology
(George Vanderbilt — Vanderbilt Room)

5:20 P.M.—Scientific and Technical Exhibits close.
(Exhibits under supervision of official watchmen)

5:45 P.M.—Social Hour and Entertainment for Technical and Scientific Exhibitors by Medical Society
(Country Club of Asheville)
Music: (to be announced)
Introduction by: President Amos N. Johnson, M.D.

6:00 P.M.—House of Delegates adjourns Annual Meeting

6:00 P.M.—Social Hour—Medical College of Virginia
(Battery Park—Pisgah Room)

6:00 P.M.—Social Hour—University of Maryland Medical Alumni Association
(George Vanderbilt—Tropical Room)

6:00 P.M.—MSSNC Student Scientific Section Program

6:30 P.M.—MSSNC Student Scientific Section Dinner honoring Third Annual Meeting MSSNC Section on Student AMA Chapters
George Vanderbilt West Ballroom

6:30 P.M.—Dinner—Medical College of Virginia
(Battery Park—Pisgah Room)

6:30 P.M.—Dinner — University of Maryland Medical Alumni Association
(George Vanderbilt—Tropical Room)

PROGRAM
Tuesday, May 9, 1961

8:30 A.M.—Scientific and Technical Exhibtis open
(Asheville City Auditorium—Exhibit Hall)

9:00 A.M.—Registration opens, Booth
(Lower Hall—Asheville City Auditorium)

SECOND GENERAL SESSION
Tuesday, May 9, 1961
(Asheville City Auditorium—Assembly Hall)

9:10 A.M.—CLINICO-PATHOLOGICAL CONFERENCE
Clinical Presentation—
Eugene A. Stead, M.D., Professor and Chairman, Department of Medicine, Duke University Medical Center, Durham
Pathological Presentation—
Kenneth A. Brinkhous, M.D., Professor and Chairman, Department of Pathology, University of North Carolina School of Medicine, Chapel Hill

10:00 A.M.—Address
Julian P. Price, M.D., Chairman, Board of Trustees, American Medical Association,
Florence, S. C.

10:30 A.M.—Break

11:00 A.M.—THE DIFFERENTIAL DIAGNOSIS OF CHEST OR ABDOMINAL PAIN
Panel Discussion
Alfred T. Hamilton, M.D., Raleigh, Moderator
PANEL
Thomas C. Worth, M.D., Raleigh
Robert M. McMillan, M.D., Southern Pines
Louis deS. Shaffner, M.D., Winston-Salem

1:00 P.M.—Announcements
Adjournment

ALUMNI LUNCHEONS
Tuesday, May 9, 1961, 1:00 P.M.
Wake Forest Alumni Association of Bowman Gray School of Medicine
(Battery Park—Gold Room)
Medical Advisory Board, North Carolina State Commission for the Blind
(George Vanderbilt—Tropical Room)

2:30 P.M.—POSTGRATDUATE AND AUDIO-VISUAL PROGRAM
(Asheville City Auditorium — Assembly Hall)
(to be announced)

SECOND MEETING OF THE HOUSE OF DELEGATES
Tuesday, May 9, 1961, 2:30 P.M.
(George Vanderbilt—East Ballroom)
(Agenda will be available)

2:30 P.M.—Scientific Section Meetings:
Section on General Practice of Medicine
(Battery Park—Gold Room)
Section on Ophthalmology and Otolaryngology
(George Vanderbilt — Vanderbilt Room)
Section on Pediatrics
(Battery Park—Pisgah Room)
Section on Public Health & Education

(Battery Park — Rhododendron Room)
Section on Anesthesiology
(Battery Park—Grove Room)
Section on Orthopaedics & Traumatology
(George Vanderbilt — West Ballroom)

5:00 P.M.—Exhibits close.

5:30 P.M.—Social Hour
Jefferson Medical Alumni Association
(Battery Park — Grove Room)

PRESIDENT'S DINNER
Tuesday, May 9, 1961
(Asheville City Auditorium—Assembly Hall)

7:00 P.M.—Banquet (Admission by ticket only)
Toastmaster: Hubert McN. Poteat, M.D.
Invocation: (minister to be announced)

7:30 P.M.—Presentation of Guests

7:40 P.M.—Presentation of President's Jewel: (to be announced)

7:50 P.M.—Installation of President-Elect, Claude B. Squires, M.D., Charlotte
Administration of Authorized Oath of Office
An Address in Acceptance:
Claude B. Squires, M.D., President
An Address:
E. Vincent Askey, M.D., President
American Medical Association
Los Angeles, California

8:40 P.M.—Adjourn Banquet Session

9:00 P.M.—Entertainment: (Floor Show to be announced)

10:00 P.M.-2:00 A.M.—PRESIDENT'S BALL
(Asheville City Audtitorium —Assembly Hall)
(Russ Carlyle and his Orchestra)

THIRD GENERAL SESSION
Wednesday, May 10, 1961
(Asheville City Auditorium—Assembly Hall)

9:30 A.M.—Convening Session
Theodore S. Raiford, M.D., First Vice-President, presiding

9:30 A.M.—Conjoint Session of the North Carolina State Board of Health, Charles R. Bugg, M.D., President, Raleigh, North Carolina
State Board of Health, will preside over this meeting of the Medical Society of the State of North Carolina and the State Board of Health.
Charles R. Bugg, M. D., President
J. W. Roy Norton, M.D., State Health Director

10:00 A.M.—Committee on Scientific Awards, Report of:
Lester A. Crowell, Jr., M.D., Chairman, Lincolnton
Recognition and presentation of Moore County, Wake County and Gaston County Awardees:
Associates, Committee on Scientific Awards:
John K. Williford, M.D., Lillington
Thomas A. Henson, M.D., Greensboro
Ralph W. Coonrad, M.D., Durham
James B. Lounsbury, M.D., Wilmington
Wm. J. McKinnon, M.D., Wadesboro
Felda Hightower, M.D., Winston-Salem
Joseph M. Hitch, M.D., Raleigh
Vernon W. Taylor, Jr., M.D., Elkin
Mr. Emory Hunt, Consultant, Chapel Hill

10:15 A.M.—Recognition of Fifty Year Club and presentation of Fifty Year Club Certificates and Pins

10:30 A.M.—An Address: Floyd L. Wergeland, Brigadier General, MC, Executive Director
Office For Dependents' Medical Care, Office of the Surgeon General, Washington, D. C.

11:00 A.M.—An Address: Honorable Dale Alford, Congressman from Arkansas
Washington, D. C.

11:35 A.M.—Presentation: Eugene A. Hargrove, M.D., Superintendent State Hospitals of North Carolina, Raleigh

11:50 A.M.—Mr. William Waddell, President National SAMA
Duke University Medical Center, Durham

12:00 Noon—Installation of Officers elected by 1961 House of Delegates

12:05 P.M.—Remarks by President: Claude B. Squires, M.D.

12:20 P.M.—Exhibits close

12:30 P.M.—Presentation of Prizes
ADJOURN SINE DIE

THIRTY-EIGHTH ANNUAL MEETING OF THE AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Tentative Convention Program

Sunday, May 7, 1961

8:00 P.M. Memorial Services for departed members of the Medical Society and

Auxiliary
(Gold Room—Battery Park Hotel)

Monday, May 8, 1961

9:00 A.M. - 4:00 P.M. Registration
(The Manor)
9:00 A.M. Golf Tournament
(Asheville Country Club)
9:15 A.M. Finance Committee Meeting
(President's Suite—The Manor)
10:00 A.M. Executive Committee Meeting
(Beau Nash Room—The Manor)
11:00 A.M. Board of Directors' Meeting
(Beau Nash Room—The Manor)
1:00 P.M. President-elect Luncheon
(Biltmore Forest Country Club)
Mrs. George T. Noel, presiding for out-going and incoming State Officers, State Committee Chairmen, Councilors, Past Presidents, County Presidents and Presidents-elect
1:00 P.M. General Luncheon for Members and Guests
(Asheville Country Club)
2:30 P.M. Bridge
(Asheville Country Club)
2:30 P.M. Wild Flower Tour up Pisgah
Conducted by Mrs. Stanley Atkins
4:30 P.M. Past Presidents' Tea
(105 Cherokee Road)

Tuesday, May 9, 1961

9:00 A.M. - 4:00 P.M. Registration
(The Manor)
9:00 A.M. House of Delegates' Meeting
(Great Hall—The Manor)
10:30 A.M. Intermission for Cokes
10:45 A.M. Annual Meeting
(Great Hall—The Manor)
Special Guests:
Mrs. W. W. Hubbard, Regional Vice-President, Woman's Auxiliary to the American Medical Association
Mrs. Henry E. Steadman, Treasurer, Auxiliary to the Southern Medical Association
Soloist: Mrs. John W. Ledbetter
12:15 P.M. Installation of Officers
12:30 P.M. Adjournment
1:00 P.M. Luncheon and Fashion Show
(Colonial Room—The Manor)
Fashions by: John Carrol
Specialty Shop
7:00 P.M. Medical Society President's Dinner, Entertainment, and Ball
(City Auditorium)

Wednesday, May 10, 1961

9:00 A.M. - 12:00 Noon Registration
(The Manor)
10:00 A.M. Tour of the Biltmore Industries and Special Display of Rare Editions at Biltmore House

COMING MEETINGS

Greensboro Academy of Medicine Symposium—Greensboro, March 30.

Southeastern Psychiatric Association, Annual Meeting—Pine Needles Lodge, Southern Pines, April 3-5.

North Carolina Baptist Hospital and Bowman Gray School of Medicine, House Staff Alumni Day and Annual Meeting—Winston-Salem, April 7.

New Hanover County Medical Society Symposium—Cape Fear Country Club, Wilmington, April 14.

University of North Carolina Medical Alumni Day—Chapel Hill, April 14.

Medical Society of the State of North Carolina, One Hundred Seventh Annual Session—Battery Park and George Vanderbilt Hotels, Asheville, May 6-10.

North Carolina Heart Association, Annual Scientific Session—Robert E. Lee Hotel, Winston-Salem, May 24.

Mountain Top Medical Assembly—Waynesville, June 22-24.

The Seaboard Medical Association of Virginia and North Carolina, Annual Meeting—The Carolinian Hotel, Nags Head, June 16-18.

Westbrook Sanatorium, Fiftieth Anniversary Celebration—Richmond, Virginia, April 15.

South Carolina Medical Association, One Hundred Thirteenth Annual Session—Francis Marion Hotel, Charleston, April 25-27.

West Virginia Academy of Ophthalmology and Otolarynology—Greenbrier Hotel, White Sulphur Springs, West Virginia, April 6-8.

Virginia Academy of General Practice, Annual Scientific Assembly—Sheraton Park Hotel, Washington, D. C., May 11-14.

American Medical Association, Annual Meeting—New York, New York, June 26-30.

New Members of the State Society

The following physicians joined the Medical Society of the State of North Carolina during the month of January:

Dr. Richard Bowden Smith, 720 Grove St., Salisbury; Dr. Darrel Watson Murray, Box 477, Franklin; Dr. William Wayne Sutton, 305 Hamlet Avenue, Carolina Beach; Dr. Harold Alfred Bauer, The Wilmington Clinic, Wilmington; Dr. Bennie Brooks Ward, 124 Vance St., Wilmington; Dr. John Lawrence Bond, Jr., Doctors Building; Dr. Davey Bingham Stallings, Clinard Rd., Rt. 1, Clemmons; Dr. James Archibald McCallum, 75 Lee Drive, Wilmington; Dr. James Reginald Cochran, Medical Arts Bldg., Laurinburg.

New Hanover Country Medical Symposium

The New Hanover County Medical Society Symposium will be presented at the Cape Fear Country Club in Wilmington, on Friday, April 14. The following program has been announced.

Morning Session

9:30 A.M. "Occlusive Disease of the Lower Extremities"
Dr. H. William Scott, Professor of Surgery, Vanderbilt University

10:30 A.M. Subject to be announced
Dr. Hugh M. Hill, Department of Obstetrics and Gynecology, University of Florida

11:00 A.M. Coffee

11:15 A.M. Subject to be announced
Dr. Charles S. Petty, Assistant Medical Examiner, State of Maryland, Baltimore

12:00 Noon Luncheon

Afternoon Session

1:30 P.M. Panel
"Recent Advances in the Physiology and Management of Peptic Ulcer Disease"
Dr. Horace Moore, Wilmington, moderator; Dr. Scott; Dr. John Sessions, Department of Gastroenterology, University of North Carolina

3:00 P.M. Coffee

3:15 P.M. Panel
"Jaundice in the Newborn"
Dr. J. Buren Sidbury, Wilmington, moderator; Dr. Julian Schorr, Department of Pediatrics, Albert Einstein College of Medicine; Dr. Ralph Moore, Wilmington

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News Notes from the University of North Carolina School of Medicine

Dr. Robert Bruce Nye, a former University North Carolina student, has been promoted from assistant dean to associate dean of the Jefferson Medical College of Philadelphia. Dr. Nye, a native of Winterville (Pitt County) attended the University from 1921 to 1923 and graduated from the two-year School of Medicine in 1925.

Dr. Nye, a cardiologist has been connected with Jefferson since his graduation in 1927 except for the year of 1938, which was spent in graduate work in cardiology at St. Bartholomew's Hospital, and during World War II when he served in the Army Medical Corps.

* * *

The National Society for Crippled Children and Adults has awarded a $11,212.50 research grant to two professors in the University of North Carolina School of Medicine, according to announcement by Dr. Edgar T. Thompson of Duke University, president of the North Carolina Society for Crippled Children and Adults.

The money will be used for research study by Dr. R. Beverly Raney, professor of surgery, and Dr. George K. Summer, assistant professor of pediatrics. It is the fifth of a series of grants, totaling $67,000, to the two men.

A fund in memory of the late Dr. John A. Lowder, who died in North Carolina Memorial Hospital on October 18, has been established at the University of North Carolina School of Medicine.

The fund, which is known as the John A. Lowder Memorial Fund, has been established by his classmates, friends and family. The income from it is to be used for an annual award or scholarship to a student at the UNC School of Medicine.

Those desiring to contribute may forward checks marked for the fund to the Medical Foundation of North Carolina, U.N.C. School of Medicine, Chapel Hill.

Dr. Robert A. Ross, Head of the Department of Obstetrics and Gynecology, was the guest speaker at the one hundredth anniversary meeting of the Obstetrical Society of Boston (Mass.) on Thursday, January 5.

* * *

The section of Physical Therapy of the School of Medicine has announced plans for an Open House to be held on Saturday, March 18, at Chapel Hill. The purpose of this program will be to acquaint interested students, parents, and educational counselors with the profession of physical therapy.

An international award winning film, "The Return," will be shown. This film depicts the story of a young patient with a spinal cord injury and the physical therapy involved in his rehabilitation.

There will be a discussion of the high school and college academic preparation for physical therapy and a tour of the North Carolina Memorial Hospital Department of Physical Therapy.

All interested high school and college students and guidance counselors are invited to make plans to attend.

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Dr. Joan V. Williams, instructor in psychology in the Department of Psychiatry, has been promoted to assistant professor.

* * *

Three members of the Orthopedic Division of the School of Medicine attended the annual meeting of the American Academy of Orthopedic Surgeons at Miami Beach January 8 to 13. Dr. Richard B. Raney, professor of Orthopedic Surgery was elected vice president of the Academy for 1961.

Dr. H. Robert Brasher, associate professor of orthopedic surgery, was nominated as an Academy candidate for the American Board of Orthopedic Surgery.

Dr. Wayne H. Akeson, assistant professor of orthopedic surgery, spoke on "An Experimental Study of Joint Stiffness" at the seventh annual meeting of the Orthopedic Research Society which was held in connection with the Academy meeting.

Six-week postgraduate courses in medicine, sponsored by the University of North Carolina School of Medicine, are being held in Hickory-Statesville and in Lumberton. The first course began at Hickory on Tuesday, February 28 and will be held at Statesville on alternate Tuesdays. The second course began at Lumberton on Wednesday, March 1.

The Hickory-Statesville course is co-sponsored by the Catawba-Iredell-Alexander Medical Society. The course in Elkin is co-sponsored by the Robeson County Medical Society.

Both courses are acceptable for credit by the American Academy of General Practice for the number of hours attended by the individual physicians.

News Notes from the Duke University Medical Center

Dr. Henry D. McIntosh, associate professor of medicine at the Duke University Medical Center, has been elected vice chairman of the Southern Section of the American Federation for Clinical Research. Elections were held during the Section's annual meeting in New Orleans. Dr. McIntosh will serve for one year.

Dr. McIntosh, a Duke faculty member since 1955, served during 1959-60 as president of the North Carolina Heart Association. He is the author of a number of scientific papers dealing with the circulatory system.

* * *

Dr. Roger D. Baker, professor of pathology at the Duke University Center and chief of the laboratory service at the Veterans Administration Hospital here, has been named head of the American Board of Pathology.

Dr. Baker will serve during 1961 as president of the trustees of the Board, which certifies specialists in pathology, the branch of medical science dealing with the origin and nature of diseases.

* * *

Dr. Walter R. Guild, associate professor of biophysics at Duke University Medical Center is conducting a research project to uncover new knowledge about heredity through genetic studies at the molecular level.

Funds scheduled to total $104,287 during the next three years have been alloted, to support this work, by the National Institutes of Health.

A Duke University medical scientist, Dr. James B. Wyngaarden (CQ), is co-editor with two other doctors of a major new book on inherited body chemistry diseases.

Published by McGraw-Hill Book Co., the 1,477 page work is entitled "The Metabolic Basis of Inherited Disease." It is designed to provide students, researchers and certain specialists with clinical, biochemical and genetic information concerning inherited metabolic (body chemistry), diseases.

Contributors to the book include Dr. Charles H. Burnett, chairman of the Department of Medicine, University of North Carolina School of Medicine; Dr. T. Franklin Williams, assistant professor of medicine at U.N.C., and Drs. T. David Elder and R. Rodney Howell, both research fellows at Duke.

* * *

A new program aimed at learning more about cerebral palsy is being initiated by the Duke University Medical Center and the North Carolina Cerebral Palsy Hospital in Durham.

The joint research effort will be supported by grants from the National Institutes of Health, principal research arm of the U. S. Public Health Service. Funds totaling $108,400 have been alloted for the first five years of operation.

Dr. Blaine S. Nashold Jr., associate professor of neurosurgery, and Dr. Lenox D. Baker, professor of orthopedic surgery, both of the Duke Medical Center faculty, will head the program. Dr. Baker is medical director of the North Carolina Cerebral Palsy Hospital and was instrumental in its establishment in 1949.

* * *

An extensive new program of development has been initiated in the Duke University Medical Center's Pathology Department, Dr. Barnes Woodhall, dean of the School of Medicine, announced recently.

This year, approximately $500,000 will be spent on renovation and alteration of existing facilities, purchase of new research equipment, and support of scientific investigations by faculty members. The bulk of this amount will be provided by grants from the National Institutes of Health, which is the research arm of the U. S. Public Health Service.

The pathology faculty is being increased and by next summer will include 12 members with the rank of assistant professor or higher.

* * *

Dr. E. C. Hamblen, professor of endocrinology in the Duke University Medical Center's obstetrics-gynecology department, left recently for a six-week research and lecture tour in Central and South America.

The major purpose of this trip is to collect and correlate data from research studies dealing with endocrine glands.

News Notes from the Bowman Gray School of Medicine of Wake Forest College

Dr. William H. Boyce, professor and chairman of the medical school's section on urology, participated in a Medical College of South Carolina postgraduate seminar, February 23, at Charleston, South Carolina. He spoke on "Urinary Factors in Stone Formation," and led round table discussions on the same topic.

* * *

Dr. Harold D. Green, Gordon Gray Professor of Physiology, has been named to the scientific council of the Institute for Advancement of Medical Communication, an organization devoted to the development and exploration of new methods and media for transmitting information within bio-medical professions.

* * *

Mrs. Ethel M. Nash, an assistant in preventive medicine (marriage counselor), delivered a series of three lectures on "What a Marriage Counselor Can Do" at Bennett Junior College, Millbrook, New York, February 6 through 10. She also gave a series of lectures on "Courtship and Engagement as Marital Adjustment Predictors" at the University of Cincinnati, February 16 through 19.

* * *

Dr. Frank R. Lock, professor of obstetrics and gynecology, was honored February 16 at a banquet given by former obstetrics-gynecology residents at the N. C. Baptist Hospital and the Bowman Gray School of Medicine. More than 150 persons attended the event, which was held in conjunction with a meeting in Atlanta of the South Atlanta Association of Obstetricians and Gynecologists.

On February 7, Dr. Lock spoke on "Rubella in Pregnancy" at a meeting of the Buffalo (N. Y.) Obstetrics and Gynecological Society. On February 20, he spoke on his rubella studies to the faculty and house staff of the University of Maryland School of Medicine at Baltimore.

* * *

Dr. Martin G. Netsky, professor of neurology and neuropathology, has been named an assistant examiner for the American Board of Psychiatry and Neurology.

Dr. Isadore Meschan, professor of radiology, served as instructor during the week of February 27 to March 3 in the radiology section of the Armed Forces Institute of Pathology.

Dr. Frank H. Hulcher, assistant professor of biochemistry, was awarded a $21,333 grant from the National Multiple Sclerosis Society. The funds will support a one-year project entitled "Chemical and Metabolic Studies on Myelin."

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Postgraduate Course

The Annual postgraduate course in obstetrics and pediatrics will be held March 21-23 under the joint auspices of the North Carolina State Board of Health and the Bowman Gray School of Medicine. The program is designed primarily for physicians in the general practice of medicine who assist in the state maternal and child welfare programs.

Registration is limited to 65, and those interested in attending the sessions should apply in advance.

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Coming Academic Events

March 27, 1961, 7:30 p.m., clinical amphitheater: Bowman Gray Medical Society program with Dr. Arnold Welch, professor of pharmacology at the Yale University School of Medicine at New Haven, Connecticut.

April 10, 1961, 7:30 p.m., clinical amphitheater: Student American Medical Association program with Dr. Charles H. Rammelkamp, director of medicine, Cleveland Metropolitan Hospital, Cleveland, Ohio, speaking on "The Microbiologist's View of Rheumatic Fever and Rheumatic Heart Disease."

April 17, 1961, 7:30 p.m., clinical amphitheater: Medical Education in National Defense program with Maj. Milton Rubini, MC, Division of Medicine, Walter Reed Army Medical Center, Washington, D. C., speaking on "Tropical Sprue and Nutritional Megaloblastic Anemias."

Edgecombe-Nash Medical Society

The regular meeting of The Edgecombe-Nash County Medical Society was held in Rocky Mount on February 8.

Dr. J. S. Brock, program chairman, introduced Dr. George Baylin, professor of radiology at Duke, to talk on "The Radiological Aspects of Certain Chest Signs and Symptoms."

Robeson County Medical Society

The February meeting of the Robeson County Medical Society was sponsored by the Robeson County Unit of the American Cancer Society. Dr. Walter Benson, assistant professor of pathology, University of North Carolina Medical School, spoke on "Carcinoma of The Lung."

The executive committee of the Robeson County Unit were guests of the society for this meeting.

Forsyth County Medical Society

Dr. E. Harvey Estes, Jr., associate professor of medicine, Duke University School of Medicine, was speaker at the regular dinner meeting of the Forsyth County Medical Society held in Winston-Salem on February 14. His subject was "Free Fatty acids in Blood: Clinical and Experimental Significance."

News Notes

Drs. Henry W. Johnson, Robert L. Vann, D. Russell Perry, and Kenan B. Williams of Winston-Salem have announced their association for the practice of pediatrics under the name of Pediatrics Associates. Offices are located at Doctors Center on Miller Street in Winston-Salem.

American Heart Association

The 1961 Annual Meeting and Scientific Sessions of the American Heart Association will be held in Bal Harbour, Miami Beach, Florida, October 20-24. The thirty-fourth annual Scientific Sessions are scheduled from Friday, October 20, through Sunday, October 22, in the Americana Hotel.

May 15 has been set as the deadline for submitting abstracts of papers to be presented at the Scientific Sessions. Papers intended for presentation must be based on original investigations in, or related to, the cardiovascular field. Official forms for submitting abstracts may be obtained from Richard E. Hurley, M.D., Medical Associate, American Heart Association, 44 East 23rd Street, New York 10, New York. Applications for scientific exhibit space, due May 15, are also available from Dr. Hurley.

Westbrook Sanatorium

The Board of Directors of Westbrook Sanatorium announces the retirement, effective January 1, 1961, of Dr. Paul V. Anderson. Dr. Rex Blankinship succeeds Dr. Anderson as president of the sanatorium.

Dr. John R. Saunders is medical director, succeeding Dr. Rex Blankinship; and Dr. T. F. Coates, Jr., is assistant medical director. Dr. J. K. Hall, Jr., was elected to the Board of Directors.

* * *

The Board of Directors and staff of Westbrook Sanatorium will soon issue invitations for the celebration of the fiftieth aniversary of the founding of Westbrook Sanatorium in 1911. As a part of the celebration the sanatorium will be host to the Neuropsychiatric Society of Virginia, a District Branch of the American Psychiatric Association, on April 15 at 2 p.m. The guest speakers will be Dr. Robert H. Felix, president of the American Psychiatric Association; Dr. Francis J. Braceland, psychiatrist in chief, the Institute of Living, Hartford, Connecticut, and past president of the American Psychiatric Association; and Dr. Mathew Ross, medical director of the American Psychiatric Association. Also appearing on the program will be Dr. Guy W. Horsley, president of the Medical Society of Virginia, and Dr. Edwin L. Kendig, Jr., president of the Richmond Academy of Medicine.

American College of Gastroenterology

The Southern Regional Meeting of the American College of Gastroenterology will be held in Houston, Texas on Sunday, March 19.

Members of the medical profession are cordially invited to attend. A copy of the program may be obtained from the Secretary, American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

A.M.A. Medicolegal Conference

An outstanding program on medicine and the law will be presented at the Kentucky Hotel in Louisville, April 14-15.

The Regional Medicolegal Conference is sponsored by the American Medical Association's Legal and Socio-Economic Division.

The Louisville meeting is the second in a series of three medicolegal meetings being sponsored by the A.M.A. this year. It will draw registrants primarily from Kentucky, Tennessee, Indiana, Illinois, Ohio, West Virginia, Virginia, North Carolina, Georgia, Alabama, South Carolina, Mississippi, Arkansas, Missouri, Wisconsin, and Florida.

All those who intend to attend the meeting are asked to make their own hotel reservations.

Registration fee will be $5 to cover the cost of a luncheon on Saturday and a copy of the proceedings. Advance registration cards may be obtained by writing: C. Joseph Stetler, Director, Legal and Socio-Economic Division, American Medical Association, 535 North Dearbon Street, Chicago 10, Illinois.

American Association of Medical Clinics

Dr. Harold D. Caylor of the Caylor-Nickel Clinic in Bluffton, Indiana, became the new president of the American Association of Medical Clinics at the Association's recent eleventh annual meeting in New Orleans. Dr. Caylor succeeded Dr. Russel V. Lee of Palo Alto, California.

President-elect is Dr. Bernard A. Watson of the Clifton Springs Sanitarium Clinic, New York. Dr. John R. Hand of Portland, Orgen, was elected second vice president; and Dr. Joseph B. Davis of Marion, Indiana, was re-elected secretary-treasurer.

American Board of Obstetrics and Gynecology

The next scheduled examinations (Part 11), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from April 8 through 15, 1961. Formal notice of the exact time of each

candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part 1 examinations will be notified of their eligibility for Part 11 as soon as possible.

All candidates, eligible for the Part 11 examinations, who have applied for the first time in 1960, will be required to submit a duplicate list of the hospital admissions as contained in their application.

The deadline date for the receipt of new and reopened applications for the 1962 examinations is August 1, 1961. Candidates are urged to submit their applications as soon as possible before that time.

Robert L. Faulkner, M.D.
2105 Adelbert Road
Cleveland 6, Ohio

World Medical Association

The Headquarters Secretariat of The World Medical Association regretfully announces the death of its Secretary General, Dr. Heinz Lord, on February 3, 1961, in Chicago, Illinois. Dr. Lord was recently appointed to replace Dr. Louis H. Bauer, who retired from the position.

Department of Health, Education and Welfare

Commissioner of Food and Drugs George P. Larrick recently announced that a panel of distinguished physicians appointed by the National Research Council at FDA's request has found that the antibiotic, Chloromycetin (chloramphenicol) is a valuable drug that should remain on the market for use in treating serious infections under medical supervision both in hospitals and for treatment of patients in the home. The panel also recommended revision of the labeling of the drug to give added emphasis to the warnings against its use in minor infections and calling attention to the necessity for adequate blood studies when use is required.

These findings are in complete accord with the conclusions reached by the Food and Drug Administration before the matter was referred to the National Research Council.

The Commissioner also announced that the manufacturer of Chloromycetin, Parke, Davis and Company, Detroit, Michigan, is cooperating in relabeling the drug in compliance with these recommendations.

* * *

The Public Health Service has announced the award of 35 project grants for graduate training in public health totaling $824,600. These grants were awarded to 24 schools in 15 States and Puerto Rico.

Two of the grants were awarded to the University of North Carolina School of Public Health —$21,527 for training in public health administration, and $16,308 for training in air hygiene and pollution.

* * *

Establishment of three new divisions in the Bureau of State Services of the Public Health Service has been announced by Surgeon General Designate Luther L. Terry.

The three new divisions, Accident Prevention, Chronic Diseases, and Community Health Practice, are created as part of a Service-wide reorganization designed to strengthen and expand present programs and to provide more assistance to State and community health departments.

* * *

Among the greater metropolitan areas with populations of a million or over, the Boston area has the highest ratio of physicians to population, according to a report issued recently by the Public Health Service.

Entitled "Health Manpower Source Book, Section 10: Physicians' Age, Type of Practice, and Location," the report reveals the numbers and locations of physicians, osteopaths, dentists, and veterinarians by region, State, county, and standard metropolitan statistical area.

Listed as Public Health Service Publication No. 263, Section 10, it may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. at 55 cents per copy. Single free copies may be obtained from the Public Health Service, Washington 25, D. C.

Veterans Adminstration

A reminder to any of the remaining Spanish-American War veterans who desire outpatient care from private physicians at VA expense was issued recently by the Veterans Administration.

Such veterans, the VA said, should notify the nearest VA office immediately. For most veterans of this war, the VA can pay for outpatient care from private physicians only when it has been authorized by the agency before the treatment is given.

In emergency cases, however, the VA may issue an authorization for emergency non-hospital treatment already given, when the agency is notified by the veteran or his physician within 15 days from the date treatment began.

Veterans Administration records show that there were 34,000 living Spanish-American War veterans as of November 30, 1960.

* * *

Gastroenterologists at 14 Veterans Administration hospitals have formed a cooperative study group for research to improve treatment for patients in their specialty.

Their first project is a study of benefits of surgical treatment as compared to benefits of medical treatment for gastric ulcers.

Book Reviews

Aid to Gynaecology. By W. R. Winterton. Edition 12, 214 pages. Price, $3.00. Baltimore: The Williams & Wilkins Company, 1960.

This is the twelfth edition of an outline book intended for students' use that covers the entire area of gynaecology completely, although rather superficially. However, in specific areas the coverage is more comprehensive, especially those paragraphs devoted to the menopausal and postmenopausal female. Here the author emphasizes those retrogressive changes that are expected at this period and describes the changes that occur in the so called "normal" individual. In other areas, excellent practical points are emphasized.

Being of British origin, the author describes therapy, especially operative therapy, that is at variance with most American authorities. In particular, the coverage of oncologic gynaecology is incomplete and at times incorrect. The definitions given for the International staging of cervical carcinoma differ from those described generally. Only a few paragraphs are devoted to the new prophylactic and diagnostic field of gynaecologic cytology. The description of the treatment of cervical carcinoma occurring in pregnancy and of endometrial carcinoma requires clarification and expansion. Excluding that portion of the book devoted to therapy, the book is most adequate in its field.

Nine Months' Reading: A Medical Guide for Pregnant Women. By Robert E. Hall, M.D. 191 pages. Price, $2.95. Garden City, New York: Doubleday & Company, Inc., 1960.

Dr. Hall's experience in obstetrics, his common sense approach, and his clear and precise presentation of the medical facts associated with pregnancy combine to make this book one of the best of the multitude of books currently being published on this subject. In 10 short chapters he covers the development of the fetus, normal labor and delivery, complications of pregnancy, and abnormal labor in a manner that answers most pertinent questions without arousing excessive apprehension in the mind of the pregnant woman. In particular, his chapters on

with intermittent claudication
every block was a mile long
now... arlidin
makes the blocks so much shorter...
he can walk many more of them in comfort

u. s. vitamin & pharmaceutical corporation
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250 East 43rd Street, New York 17, N. Y.

Rules and Regulations, Motherhood in the Hospital and at Home, and The Patient and her Doctor are very sensibly written, and should dispel many of the problems inherent in pregnancy and the puerperium from the selection of a physician through the six-week postpartum check. A glossary of obstetric terms, which is essential for a book of this type, is appended.

Pain and Itch: Nervous Mechanism. By Ciba Foundation Study Group No. 1. 120 pages. Price, $2.50. Boston: Little-Brown & Company, 1959.

This 120 page Ciba Foundation symposium contains eight penetrating discussions of pain by 20 accomplished researchers. Each of the essayists reviews his major contributions and is criticized appropriately, with a minimum of platitudes and electrophysiologic jargon.

This consideration of pain and itch could have been divided into an analysis of terminals in the skin, afferent conduction, and cerebral receptors. Weddell summarizes reasons for believing free nerve endings respond to touch and temperature changes as well as pain. Conclusions based on stimulation of the cornea are criticized because of the unique innervation of that organ.

Douglass and Ritchie, and Iggo attempt to identify the tiny C fiber impulses in mammals by using antidromic volleys to occlude afferent impulses. Iggo recorded relatively specific responses to temperature change, touch, and mechanical stimulation of single C fibers. Douglass and Ritchie describe the responses of bundles of C fibers to the same kinds of stimulation used by Iggo, but implied that all C fibers have similar sensitivities. Strangely, the fibers mediating "slow" pain remain either unseparated from C fibers conveying other modalities of sensation or are represented by potentials too small to record.

Zotterman concludes that both itch and tickle are similar to pain because tickle-like stimuli evoke C fiber activity. Landgran discusses his data, showing that 75 per cent of cortical units in the sensory projection of the tongue responded to only one modality. Arthur and Shelley evaluate a variety of protein substances causing itch, and describe "itch spots," whose specificity is not correlated with neuroanatomic findings.

This is a stimulating booklet for anyone interested in the physiology of pain.

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safely increases local blood supply and oxygen where needed most... in distressed "walking" muscles for sustained, gratifying relief of pain and spasm in

intermittent claudication of arteriosclerosis obliterans
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diabetic atheromatosis

night leg cramps
ischemic ulcers
Raynaud's syndrome
cold feet, legs and hands

Arlidin is available in 6 mg. scored tablets, and 5 mg. per cc. parenteral solution. See PDR for dosage and packaging.

Protected by U. S. Patent Numbers: 2,661,372 and 2,661,373

Infectious Diseases of Children. By Saul Krugman, M.D. and Robert Ward, M.D. Edition 2, 398 pages. Price, $13.00. St. Louis: C. V. Mosby Co. 1960.

Infectious Diseases of Children, unlike most textbooks, is one that can be read from beginning to end. The chapters are concise, clearly written, and well illustrated with case reports, figures, and photographs. The drawings showing the distribution of the rash in various exanthems and the schematic diagrams of the typical clinical course of each disease are valuable to the medical student, who may rarely see the common acute diseases of childhood in a university medical center. The generalizations made by the authors are well documented by selected references to laboratory and clinical experiments. The therapy recommended is specific enough that the practitioner need not look elsewhere for further details.

Although the authors state that this text is not intended to be all-inclusive, most of the diseases omitted are either not prevalent in this country or are themselves the subject of entire volumes. Those which are included are discussed completely — from the properties of the infectious agent to the therapy of the patients' contacts.

In the 1960 edition all chapters have minor additions. One new chapter discusses rabies, with particular reference to protection after animal bites. The other new chapter, on acute respiratory infections, covers all presently described respiratory viruses.

The text is, in general, accurate and very carefully written. However, a few criticisms should be made. Unlike the chapter which discusses only the rickettsial diseases which occur in the United States, the chapter on arthropod-borne encephalidites includes some unnecessary material on the Japanese, Russian, and Australian viruses — not in keeping with the selectivity that characterizes the rest of the book. In the chapter on bacterial meningitis, the importance of the pharmacology of the preparation of a drug used is indicated in the authors' discussion of the effects of suspension particle size and heat stability of the palmitate of chloramphenicol on final blood levels. However, sulfadiazine and sulfisoxazole, which differ significantly in degree of inactivation and penetration into the cerebrospinal fluid, are grouped together in a single dosage schedule for sulfonamides. The importance of determining blood sulfa levels during the therapy of meningitis is not mentioned.

One wonders if medical science is advancing so rapidly that it is necessary to have a second edition of this text only two years after the first edition. Too frequent revision of textbooks implies an instability in fundamental principals whch does not exist. The value of this book is not the recency of the factual information which it has, but rather the authors' judgment in the selection and organization of its contents.

Anyone who owns the 1958 edition would probably be aware of recent information on oral poliomyelitis vaccines, chloramphenicol toxicity, and acquired toxoplasmosis. Anyone who has not seen the 1958 edition and who deals with infectious diseases in children or adults would find this a brief, convenient reference book to own. The organization of this text around experimentally verified data makes it unlikely that it will soon become outdated and forms a basis for the physician to interpret and integrate future observations in the field of infectious diseases.

Positive Health of Older People

The book, "Positive Health of Older People," provides a compact, timely resource with a fresh point of view which emphasizes the positive aspects of aging. The 131-page paperback, quoting authorities who spoke at the National Health Council's 1960 Health Forum, reveals the latest developments in the numerous fields that impinge on the well-being of the elderly, and enumerates practical suggestions for action to be taken by individuals, industry, the health professions, voluntary health and welfare agencies, and government.

Brought together in this one volume are statements by physicians, educators, sociologists, economists, biological and medical researchers, clergymen; experts in housing, insurance and personnel administration; psychiatrists, nurses, dentists, social workers, dietitians; officials in public health and welfare; heads of hospitals, clinics, nursing homes and other institutions; leaders in business, labor and voluntary organizations.

Among the subjects discussed are the changing attitudes toward aging; investigation and discovery in physical aging, in mental and emotional health, and rehabilitation; new approaches to health services; retirement planning; institutional services; trends in cultural and family patterns; housing; community activities; and goals for the future.

More than 80 per cent of the funds used to pay the student's costs of medical education come from the student and his family, a report by the Association of American Medical Colleges shows.

The Month in Washington

President Kennedy asked Congress to increase Social Security taxes to finance limited medical care for elderly persons on the Social Security rolls, a plan opposed by the medical profession.

The proposal was part of a sweeping health program outlined by Kennedy in a special message to Congress during his first month in the White House.

The Kennedy program also included federal aid for construction and operation of medical schools, scholarships for medical and dental students, grants for community nursing and hospital services, stepped-up medical research, and expanded federal activity in the field of child and youth health.

Under Kennedy's proposal, Social Security beneficiaries 65 years and older could get up to 90 days of hospitalization for each single illness. However, the patient would have to pay $10 daily for the first nine days of hospitalization with a minimum payment of $20.

After release from a hospital, the elderly person could get up to 180 days in a nursing home. The Social Security program also provides for payment by the government of all outpatient diagnostic costs in excess of $20 and community visiting nurse services.

The program would be financed by increased Social Security taxes by one-fourth of one per cent on both employers and workers and by three-eighths of one per cent of sel-employed persons covered by Social Security. The Social Security tax base also would be increased from the present $4,800 a year to $5,000.

Enactment of this proposal, coupled with another Kennedy recommendation and increases in the Social Security tax already scheduled in the law, would mean that workers and employers would be paying $250 each in Social Security taxes in 1969.

Nationwide television audiences were told by an American Medical Association spokesman why the medical profession supports the Kerr-Mills program of medical care for the aged and opposes tying it in with Social Security.

In television debates with Senator Hubert Humphrey (D., Minn.) on NBC-TV and Walter Reuther, organized labor spokesman, on CBS-TV, Dr. Edward R. Annis of Miami, Florida, described the Kerr-Mills program as "sound and effective." He said it "must be given the chance it deserves."

"Congress passed it because it believed that the important thing was to help the people who need help; to help them quickly; and to help them through the machinery of local government," Dr. Annis said.

The A.M.A. Board of Trustees charged the CBS network with "misrepresentations, bias, and distortions" on another program: "The Business of Health in—Medicine, Money and Politics."

The network edited out of the taped program the A.M.A.'s true position on health care for the aged:

"The A.M.A. believes that any medical care plan is both unsound and unfair which would compel working people to shoulder increased Social Security taxes to finance health costs of all those over 65 (under Social Security), rich and poor alike, regardless of whether they want or need such help and which, at the same time, ignore millions of indigent elderly who do not need help."

Kennedy's health program faced strong opposition in Congress. The consensus of Capital Hill observers was that it stood a 50-50 chance of getting Congressional approval, but not before it had been cut down. There were some who doubted that the Administration's program for medical care of the aged would be acted upon, at least by both houses of Congress before next year.

Arthur H. Motley, president of the Chamber of Commerce of the United States, warned that Social Security taxes are being increased to a point "where peopel might rebel against the whole Social Security system."

He contended that this nation's present personal medical care system is the best of any large nation.

"It's worth crusading for and that is what the Chamber is doing," Motley said.

From the Washington Office of the American Medical Association

In Memoriam

S. Raymond Thompson, M.D.

The members of the Mecklenburg County Medical Society were saddened by the death of one of its members, S. Raymond Thompson, on December 10, 1960.

Dr. Thompson was born in Lumberton, North Carolina, on September 2, 1890, the son of the late Betty Griffin and Jacob Thompson. He attended the local public schools and received his medical education at the North Carolina Medical College, Charlotte, from which he was graduated in 1914. Immediately after graduation he began the practice of urology in association with the late Dr. A. J. Crowell in Charlotte. With the exception of two years of military service in 1917 and 1918, he continued in his chosen specialty until his retirement in 1950 because of ill health. Dr. Thompson held the unique distinction of being the second physician in North Carolina to limit his practice exclusively to urology.

Dr. Thompson was made a fellow of the American College of Surgeons in 1922. He was president of the Mecklenburg Medical Society in 1932, president of the Seventh District Medical Society in 1935, and president of the Tri-State Medical Society in 1947. Until his retirement he was an active member of the American Medical Society, the American Urological Association, and the Southeastern Section of the American Medical Association.

Dr. Thompson was an ardent student of urology and, during his active years, contributed at least 35 scientific articles to medical literature. From 1941 to 1948 he was editor of the Urology Department of the **Tri-State Medical Journal.**

In 1925, Dr. Thompson married Mary Covington Entwistle of Rockingham. He was the father of two children, S. Raymond Thompson, Jr., and Johan Thompson Newcombe. He is survived by his wife, daughter, two grandchildren, and four sisters. He was a member of the Myers Park Methodist church. He was also a member of the Charlotte Country Club and the Charlotte City Club.

Dr. Thompson was not only skilled in the science of medicine, but also in the art of medicine. He was noted for his cordiality to physicians and patients alike. Tolerance and kindness were ever present in his relationships with others. The members of the Mecklenburg County Medical Society feel a great loss in the passing of our friend and colleague.

Walter F. Daniel, M.D.
John P. Kennedy, M. D.
Elias S. Faison, M.D.

Wesson Fund Awards New Grants

The Wesson Fund for Medical Research and Education has announced seven grants totaling $46,965 for basic and clinical research relating to the influence of edible fats and oils on human nutrition.

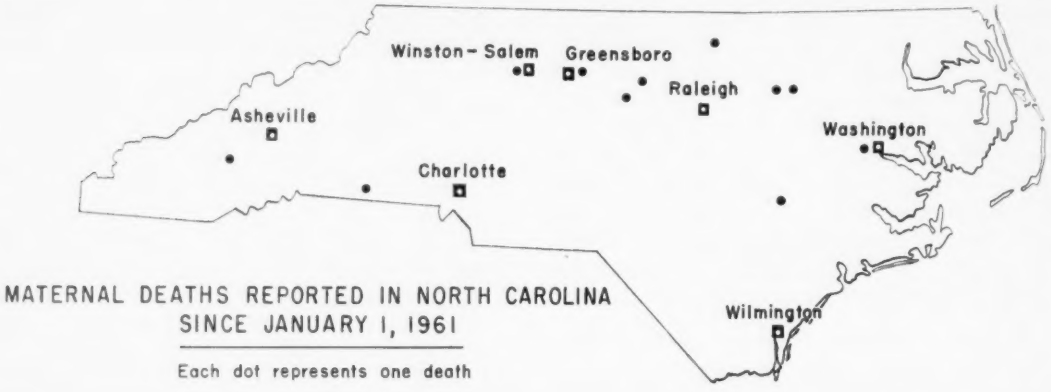
The new awards bring the total of Wesson Fund grants made in 1960 to $108,916.

Blue Shield Film Made Available

Almost 3,000 prints of the new Blue Shield sound and color filmstrip, "The Guardians," have been distributed to secondary schools by local Blue Shield Plans, it was reported recently by the National Association of Blue Shield Plans.

The Blue Shield filmstrip was produced as a public service to upper elementary and high schools and made available by Blue Shield Plans last fall.

"The Guardians" seeks to give young people an understanding of the never-ending struggle by the medical profession to overcome disease, and of the progress of medicine through the ages, with emphasis on the dramatic advances made within the 20th century. Specifically, the filmstrip seeks to develop appreciation of the contribution to the public's health made by the "guardian" of health, the physician, and to encourage students to become more aware of the need for development of individual responsibility, especially in planning ahead to meet the cost of any necessary future medical care.



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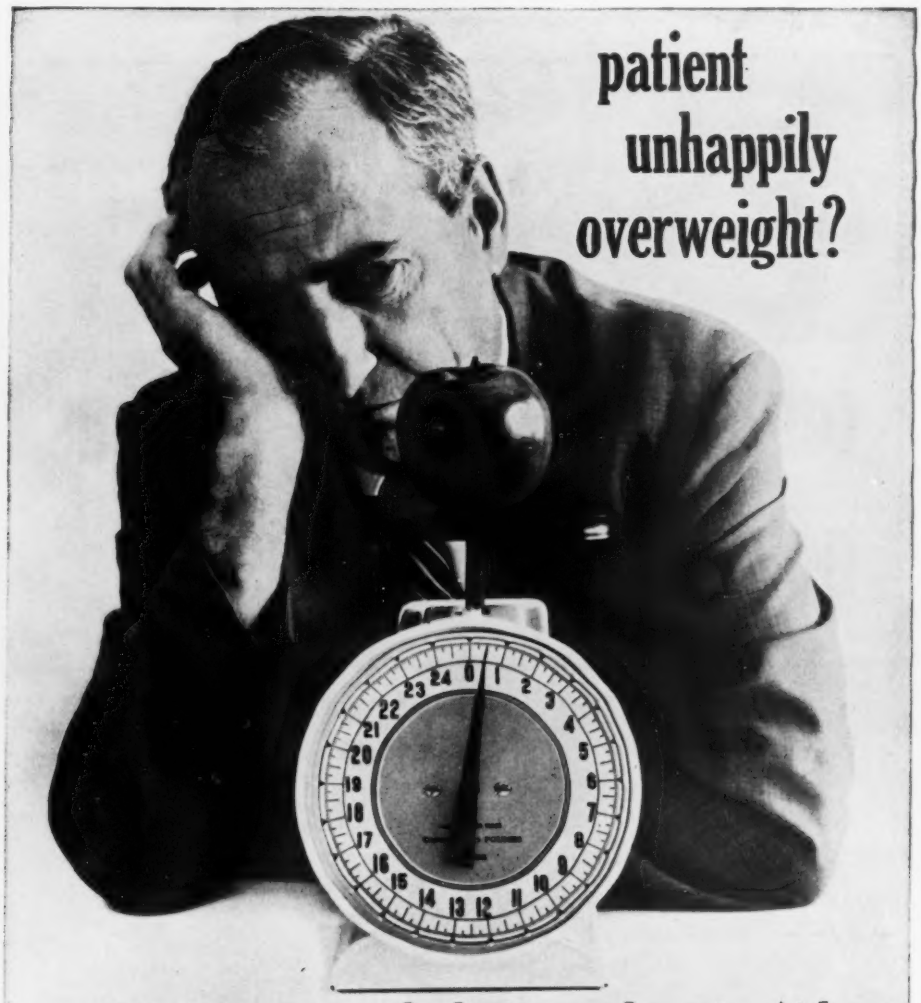

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1. Barden, F. W., et al.: J. Maine M. A. 46:99, 1955.
2. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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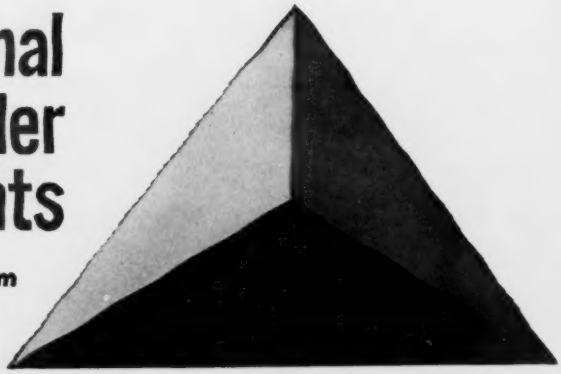

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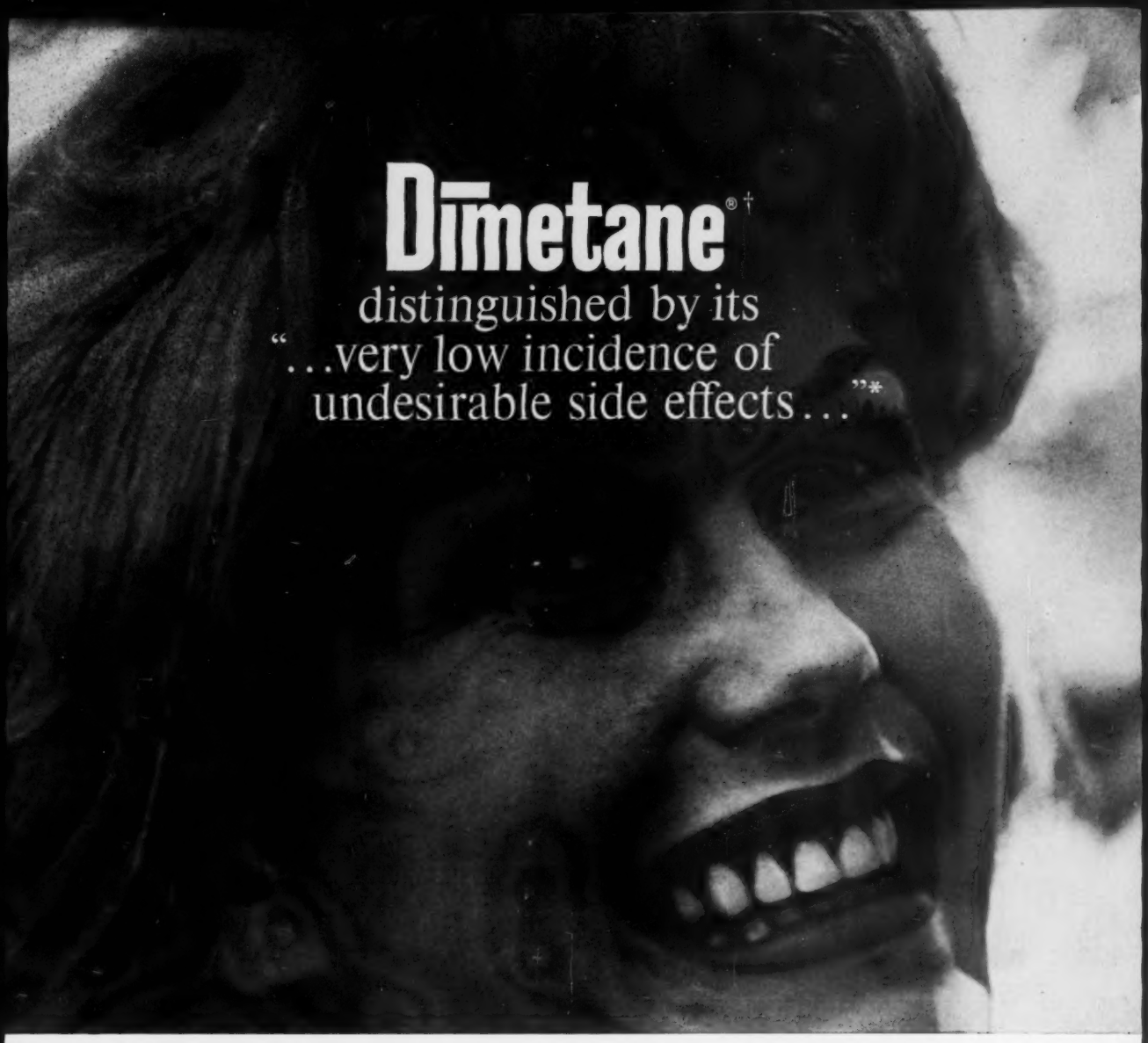

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*MC GOVERN, J. P., MC ELHENNEY, T. R., HALL, T. R., AND BURDON, K.D.: ANNALS OF ALLERGY 17:915, 1959.

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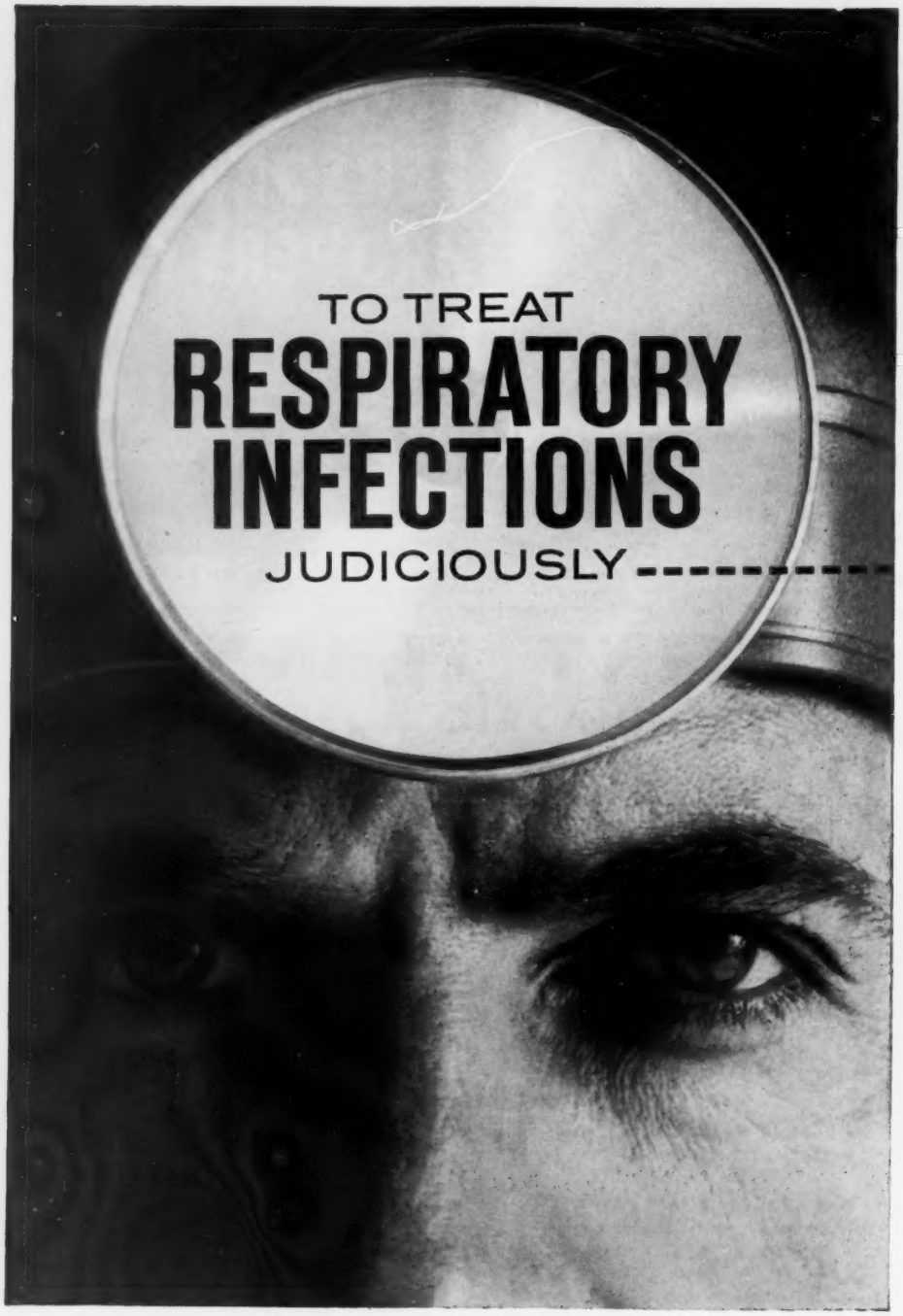
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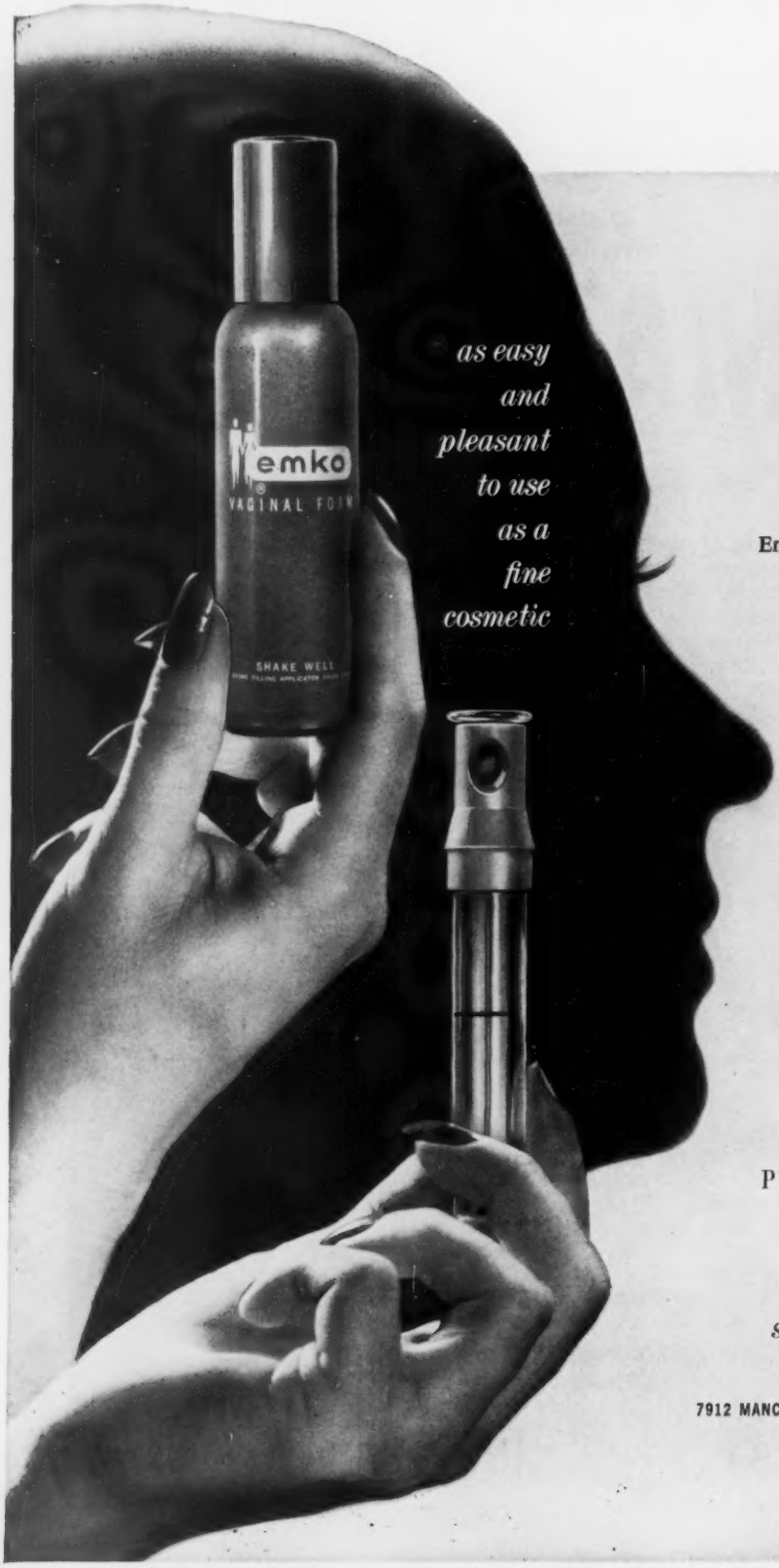

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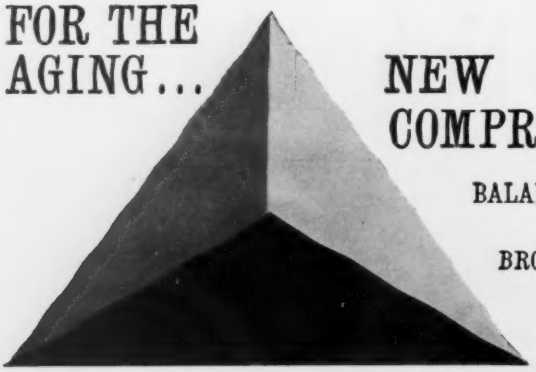

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(Organic diseases of the nervous system, psychoneuroses, psychosomatic disorders, mood disturbances, social adjustment problems, involutional reactions and selective psychotic and alcoholic problems.)

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you can't prescribe a more effective antibiotic than ERYTHROCIN®

Erythromycin, Abbott

How much "spectrum" do you need in treating an infection? Clearly, you want an antibiotic that will show the greatest activity against the offending organism, *and the least activity against non-pathogenic gastro-intestinal flora.*

Weigh these criteria—and make this comparison—when treating your next coccal infection. Erythrocin is a medium-spectrum antibiotic, notably effective against gram-positive organisms. In this it comes close to being a "specific" for coccal infections—*which means it is delivering a high degree of activity against the majority of common infection-producing bacteria.*

And against many of the troublesome "staph" strains—a group which shows increasing resistance to penicillin and certain other antibiotics—Erythrocin continues to provide bactericidal activity. Yet, as potent as Erythrocin is, *it rarely has a disturbing effect on normal gastro-intestinal flora.* Comes in easy-to-swallow Filmtabs®, 100 and 250 mg.

Usual adult dose is 250 mg. every six hours. Children, in proportion to age and weight. Won't you try Erythrocin?

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ABBOTT

903204

PROTEIN

essential for an adequate food supply

With other nutrients, the availability of protein determines the adequacy of a nation's food supply . . . with which the United States is well-blessed.

In 1957, this nation's food supplied per person per day . . .

3,180 calories provided by 96 gm. of protein . . .
145 gm. of fat . . . and 382 gm. of carbohydrate . . . accompanied by
1.03 gm. calcium . . . 16.5 mg. iron . . .
7,400 I.U. vitamin A value . . .
1.84 mg. thiamine . . . 2.35 mg. riboflavin . . .
20.1 mg. niacin . . . 0.13 mg. folic acid . . .
106 mg. vitamin C.

Of the 96 gm. of protein per person per day . . . ⅔ was supplied by foods of animal origin and ⅓ by foods of plant origin . . . ⅓ by meat, poultry and fish . . . ¼ by milk and dairy foods . . . 1/5 by flour and cereal products . . . 1/7 by vegetables and fruits . . . and 1/14 by eggs. This food supply provides generous amounts of essential amino acids.

Protein malnutrition is rarely seen in the United States where only 1% of the households have less than 50 gm. of protein per day per adult man . . . 72% have more than 100 gm. per day . . . and even 50% of families with incomes of less than $2,000 have more than 100 gm. protein per day per adult man . . . for whom the recommended dietary allowance is 70 gm. Those whose protein intakes least often meet their recommended allowances are . . . adolescent girls . . . homemakers . . . and elderly people.

Diets which supply the pregnant woman with less than 50 gm. of protein and 1500 calories were found, in one study, correlated with maternal and fetal complications.

Milk is man's first dietary source of protein. Milk and dairy foods provide one-fourth of the protein in our food supply.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

Since 1915 . . . promoting better health through nutrition research and education
NATIONAL DAIRY COUNCIL
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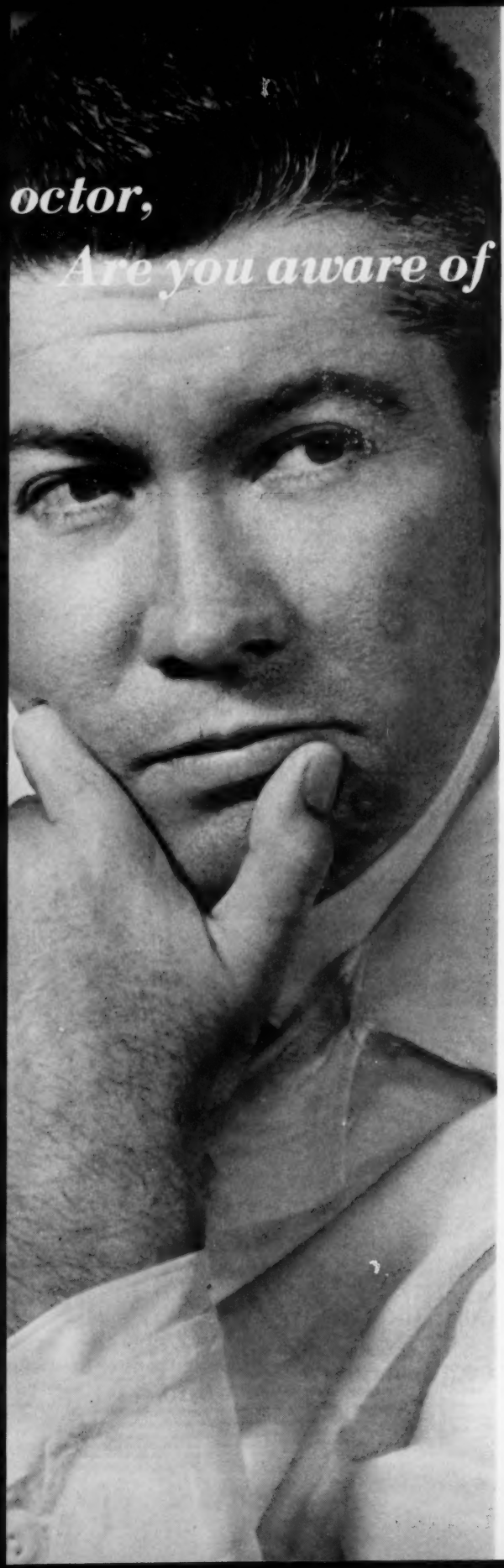

octor,

Are you aware of

TROPINAL

for the nervous patient with gastrointestinal or other smooth muscle spasm?

In the new formula for Tropinal TABLET and ELIXIR (there are two different dosage forms) homatropine methyl bromide and butabarbital sodium are combined to provide a means of effective relief from the manifestations of gastrointestinal spasm and hyperchlorhydria with virtual freedom from undesirable side effects.

New Formula:
(Adopted Dec. 1960)

Each tablet or teaspoonful (5 cc.) contains:

Butabarbital Sodium ... 15 mg.
(Warning: May be habit forming)

Homatropine Methyl Bromide ..... 5 mg.

Indications: For the relief of spasticity of the gastrointestinal tract, such as pylorospasm, biliary spasm, cardiospasm, and spastic colon. Effective antispasmodic action is provided in spasm associated with peptic ulcer, gastritis, cholecystitis, and other such organic diseases. The combination of antispasmodic plus mild sedative is also of value for the alleviation of spasticity associated with flatulence, nausea, distension, or similar disturbances associated with functional derangements.

Dosage: Usually administered in doses of one tablet (or one teaspoonful of the elixir) four times daily before meals and at bedtime. Because of the wide margin of safety, larger doses may be employed with safety where indicated. Infants may be given one-fourth tablet or fifteen drops of the elixir. This dosage may be repeated several times a day as necessary in infant colic.

Supplied: Tropinal Tablets (yellow, scored and monogrammed with "PP") in bottles of 100 and 1000; Tropinal Elixir (red) in bottles of one pint and one gallon.

Samples And Literature Gladly Sent Upon Request

PHYSICIANS PRODUCTS CO., INC.
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APPALACHIAN HALL

ESTABLISHED — 1916

ASHEVILLE **NORTH CAROLINA**

An Institution for the diagnosis and treatment of Psychiatric and Neurological illnesses, rest, convalescence, drug and alcohol habituation.
Insulin Coma, Electroshock and Psychotherapy are employed. The Institution is equipped with complete laboratory facilities including electroencephalography and X-ray.
Appalachian Hall is located in Asheville, North Carolina, a resort town, which justly claims an all around climate for health and comfort. There are ample facilities for classification of patients, rooms single or en suite.

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For Quality without Question... Enjoy the unique refreshment of sparkling Coca-Cola

DRINK Coca-Cola REG. U.S. PAT. OFF.

SIGN OF GOOD TASTE

Percodan tablets effectively relieve pain through a range of

intensities commencing with moderate pain and extending

through major traumatic areas into further regions of severe pain

Percodan®

(Salts of Dihydrohydroxycodeinone and Homatropine, plus APC)

TABLETS

for pain

prompt relief
profound relief
prolonged relief

ACTS FASTER—usually within 5-15 minutes. **LASTS LONGER**—usually 6 hours or more. **MORE THOROUGH RELIEF**—permits uninterrupted sleep through the night. **RARELY CONSTIPATES**—excellent for chronic or bedridden patients.

AVERAGE ADULT DOSE: 1 tablet every 6 hours. May be habit forming. Federal law permits oral prescription.

Each PERCODAN* Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. acetophenetidin, and 32 mg. caffeine.

Also available—for greater flexibility in dosage—PERCODAN®-DEMI: The PERCODAN formula with one-half the amount of salts of dihydrohydroxycodeinone and homatropine.

LITERATURE AVAILABLE ON REQUEST

Endo

ENDO LABORATORIES
Richmond Hill 18, New York

*U.S. Patent Nos. 2,628,185 and 2,907,768

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for the patient who is

coughing his head off

in upper respiratory infections

HASACODE®

- **Quiets the overactive cough reflex**
- **Relieves aches and fever**
- **Sedates the anxious patient**
- **Handy tablet form**

COMPOSITION: Each tablet contains:

Acetylsalicylic Acid	2½ grains
Acetophenetidin (Phenacetin)	2½ grains
Phenobarbital	¼ grain
Codeine Phosphate	¼ grain
Hyoscyamus Alkaloids	.0337 mg.

DOSE: One or two tablets every 3 or 4 hours, as required. Not more than 8 tablets should be taken in 24 hours. WARNING: *may be habit forming.*

also HASACODE "STRONG"

Same formula as HASACODE, but with ½ grain codeine phosphate. For use where relief of pain is the primary target. DOSE: As for HASACODE.

And for relief of less severe type of respiratory infection:

HASAMAL®

Same formula as HASACODE, but without codeine phosphate. DOSE: As for HASACODE.

SUPPLIED: All forms available in bottles of 100 and 500 tablets.

CHARLES C. HASKELL & COMPANY
Richmond, Virginia

BENADRYL Hydrochloride (diphenhydramine hydrochloride, Parke-Davis). Kapseals® of 50 mg.; Capsules of 25 mg.; Emplets® (enteric-coated tablets) of 50 mg.; in aqueous solutions: 1-cc. Ampoules, 50 mg. per cc.; 10- and 30-cc. Steri-Vials,® 10 mg. per cc. with 1:10,000 benzethonium chloride as a germicidal agent; Elixir, 10 mg. per 4 cc.; 2% Ointment (water-miscible base); Kapseals of 50 mg. BENADRYL HCl with 25 mg. ephedrine sulfate. INDICATIONS: Allergic diseases such as hay fever, allergic rhinitis, urticaria, angioedema, bronchial asthma, serum sickness, atopic dermatitis, contact dermatitis, gastrointestinal allergy, vasomotor rhinitis, physical allergies, and allergic transfusion reactions, also postoperative nausea and vomiting, motion sickness, parkinsonism, and quieting emotionally disturbed children. Parenteral administration is indicated where, in the judgment of the physician, prompt action is necessary and oral therapy would be inadequate. DOSAGE: Oral—adults, 25 to 50 mg. three or four times daily. Children, 1 or 2 teaspoonfuls of Elixir three or four times daily. Parenteral—10 to 50 mg. intravenously or deeply intramuscularly, not to exceed 400 mg. daily. High doses may be required in acute, generalized or chronic urticaria, allergic eczema, bronchial asthma, and status asthmaticus. PRECAUTION: Avoid subcutaneous or perivascular injection. Single parenteral dosage greater than 100 mg. should be avoided, particularly in hypertension and cardiac disease. Products containing BENADRYL should be used cautiously with hypnotics or other sedatives; if atropine-like effects are undesirable; or if the patient engages in activities requiring alertness or rapid, accurate response (such as driving). Ointment or Cream should not be applied to extensively denuded or weeping skin areas. Preparations containing ephedrine are subject to the same contraindications applicable to ephedrine alone.

Feb. 1961 (P-492)

when allergy looms large in the life of your patient...

relieves the symptoms of food allergy When the allergic patient can't resist eating an offending food, the ensuing punishment is often out of all proportion to the nature of the "crime." In such cases, BENADRYL provides a twofold therapeutic approach to the management of distressing symptoms.

antihistaminic action A potent histamine antagonist, BENADRYL breaks the cycle of allergic response, thereby relieving gastrointestinal upset, urticaria, edema, pruritus, and coryza.

antispasmodic action Because of its inherent atropine-like properties, BENADRYL affords concurrent relief of gastrointestinal spasm, abdominal pain, nausea, and vomiting.

PARKE-DAVIS

PARKE, DAVIS & COMPANY, Detroit 32, Michigan

BENADRYL®

antihistaminic-antispasmodic

cuts most allergens down to size!

after 5 years of research and

41,000 patient days of clinical testing

a new infant formula

nearly identical to mother's milk[1] in nutritional breadth and balance

Enfamil®

Infant formula

In a well controlled institutional study,[2] *Enfamil* was thoroughly tested in conjunction with three widely used infant formula products. These investigators reported that Enfamil produced • good weight gains • soft stool consistency • normal stool frequency

nearly identical to mother's milk . . .

• in caloric distribution of protein, fat and carbohydrate • in vitamin pattern (vitamin D added in accordance with NRC recommendations) • in osmolar load • in ratio of unsaturated to saturated fatty acids • in absence of measurable curd tension . . . enhances digestibility

1. Macy, I. G.; Kelly, H. J., and Sloan, R. E.: with the Consultation of the Committee on Maternal and Child Feeding of the Food and Nutrition Board, National Research Council: The Composition of Milks, Publication 254, National Academy of Sciences and National Research Council, Revised 1953. 2. Brown, G. W.; Tuholski, J. M.; Sauer, L. W.; Minsk, L. D., and Rosenstern, I.: Evaluation of Prepared Milks in Infant Nutrition; Use of the Latin Square Technique, J. Pediat. 56:391 (Mar.) 1960.

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Symbol of service in medicine